MEASUREMENT OF ADOLESCENT PSYCHOPATHY: CONSTRUCT AND PREDICTIVE VALIDITY IN TWO SAMPLES OF JUVENILE OFFENDERS

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The construct of psychopathy holds promise as a discriminating variable in the classification and explanation of childhood antisocial behavior. The new generation of psychopathy measures, designed to measure this construct in adolescent populations, must meet acceptable standards of reliability and validity prior to the clinical application of the construct with adolescent offenders. The purpose of this study is to examine the construct and predictive validity of adolescent psychopathy as measured by the PCL:YV, PSD, SALE, and SRP-II. Data from two samples of detained adolescent offenders (short-term and long-term detention) are utilized to investigate construct validity via MTMM. In addition, external validity indices including institutional violations (fighting, seclusions, and treatment refusals) and community supervision (probation contacts, drug testing, and re-arrests) are operationalized and measured in order to examine the predictive validity of adolescent psychopathy. Results of construct validity offer modest support for the two-factor model of psychopathy. For external validity, Factor 2 accounted for greater variance in the prediction of institutional infractions and subsequent placements in a secure facility; however, its overall predictive validity was low. The results suggest that the current measures assess psychopathic traits and behaviors which may be stable in adults but are likely to be normative and transient in many adolescents.

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CHAPTER I

INTRODUCTION

Juvenile Offenders: Social and Legal Context

The rising rates of serious juvenile crimes have engendered public fear (Sheley & Wright, 1998) and professional concerns (Heilbrun, Leheny, Thomas, & Hunneycutt, 1997; Lipsey, Wilson, & Cothern, 2000). In response, public-policy initiatives have increased the focus on public safety (see Bourque et al., 1996) and the transfer rate of juveniles into the adult criminal justice system (Kruh & Brodsky, 1997; Melton, Petrila, Poythress, & Slobogin, 1997; Parent, Dunworth, McDonald, & Rhodes, 1997). Recent statistics reflect the results of this philosophical shift. In 1998, 69.0% of arrested juveniles were referred to the juvenile court and 7.0% were directly referred to adult criminal court (Snyder, 1999).

Juvenile crimes reflect a broad continuum of violent acts from fighting to murder. For example, an estimated 16% of U.S. high school students reported being involved in one or more physical fights (Lockwood, 1997). In 1998, juveniles accounted for 18% of all arrests, and 17% of all arrests for violent crimes (Snyder, 1999). As a whole, the criminal activity of juveniles is heterogeneous with offenses ranging from status offenses (e.g, truancy, runaways) property crimes (e.g, vandalism, burglary) to serious violent crimes (e.g., aggravated assaults, robbery).

Conclusions drawn from a report by the Office of Juvenile Justice and Delinquency Prevention indicate that serious juvenile offenders are a distinct group who tend to start offending at an early age and include a spectrum of offenses ranging from property crime to serious aggression (Foote, 1997). Research has shown that approximately 5% of juvenile offenders are responsible for roughly 60% of criminal acts among adolescents (Cottle, Lee, & Heilbrun, 1999, Moffit, 1993) and progress to similar rates of offending as adults (see Loeber, 1991). Courts and clinicians have struggled with the problem of accurate identification and classification of the minority of juveniles who are most likely to engage in later acts of criminal behavior (Hawkins et al., 2000).

A recent meta-analysis by Cottle, Lee, and Heilbrun (1999) addressed the prediction of criminal recidivism in juveniles. The meta-analysis reviewed 15 studies of adolescent offending behavior and found an average recidivism rate of approximately 52.3% for general recidivism. Delinquent history variables including early age of first arrest, commission of serious crimes, and frequency of arrests were significant but modest predictors of general recidivism (rs ranging from .27 to .34). Demographic variables including age and race were negligible predictors of general recidivism (rs ranging from .12 to .16). Although family and social factors also were predictive of general recidivism, the strength of the association was less than demographic and delinquent history variables.

Results of the meta-analysis indicate that early and accurate identification of offending behavior has important implications for future offending. For example, Hawkins et al. (2000) found that commission of a juvenile offense between ages 6 and 11

was related to commission of a violent offense (average r = .38) in adolescence and early adulthood (ages 15-25). These studies show that demographic and offense-related variables are moderate predictors of juvenile offending behavior. Successful intervention is dependent on the accurate prediction of juvenile offenders who are at greatest risk to commit serious crimes (Lipsey, Wilson, & Cothern, 2000). Research must continue to investigate variables that have potential for increasing prediction of juvenile offending.

The association between psychopathy and violence has been examined extensively in adult offenders and established as a significant predictor of general and violent recidivism (e.g., Salekin, Rogers, & Sewell, 1996), institutional management problems (e.g., Hill, Rogers, & Bickford, 1996), and poor treatment response (e.g., Losel, 1998; Serin, 1995). Psychopathy is described as a form of personality disorder with distinctive emotional, interpersonal, and behavioral symptoms (see Hart & Hare, 1999). Psychopaths are characterized as grandiose, callous, and manipulative in their relations with others. Affectively, they lack empathy, are short-tempered and unable to form emotional bonds. Behaviorally, they are irresponsible, impulsive, and prone to violate social norms.

Within the past five years, researchers began to examine the applicability of psychopathy to children and adolescents (Frick, 1998a; Frick, O'Brien, Wootton, & McBurnett, 1994; Rogers, Johansen, Chang, & Salekin, 1997). A focal point of this research has been the development of assessment measures (interview and self-report) to assess the personality and behavioral dimensions associated with adult psychopathy (Forth & Burke, 1998; Forth, Hart, & Hare, 1990; Forth, Kosson, & Hare, 1994; Frick &

Hare, in press). An important empirical question is whether psychopathy can serve as a useful construct in the identification and classification of juvenile offenders? In order to address this question, research must address four critical issues. First, is the two-factor model of adult psychopathy applicable to children and adolescents? Second, can the construct be reliably and validly assessed in this population? Third, what is the relationship between psychopathy and traditional classifications of childhood disruptive behaviors, such as Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD)? Fourth, what is the relationship between psychopathy and behavioral outcomes including general and violent recidivism?

The purpose of this introduction is to provide an overview of the classification of antisocial behavior in children and adolescents. First, traditional models (i.e., Diagnostic and Statistical Manual of Mental Disorders - DSM) and alternative classifications for childhood antisocial behaviors are reviewed. Within each model, behavioral outcomes and the interrelationships among diagnostic categories are discussed. Second, the construct of psychopathy is reviewed highlighting the research on its construct and predictive validity in adult offenders. Third, the developing research on adolescent psychopathy is reviewed, evaluating the downward extension of the adult model and etiological theories of psychopathy. Research in adolescent psychopathy is in its early stages. The ongoing investigation of this construct in adolescent offenders will likely have far-reaching ramifications for advancing etiological theories of antisocial behavior, treatment, and institutional management strategies.

Classification Models for Antisocial Behavior in Children

This section of the introduction reviews the conceptual and empirical literature concerning the classification of antisocial behavior. First, the traditional classification model denoted in successive DSM versions: DSM-II (APA, 1968), DSM-III (APA, 1980), DSM-III-R (APA, 1987), and DSM-IV (APA, 1994) are reviewed. Second, empirical research is evaluated which has refined the traditional DSM models. Finally, the construct of psychopathy is discussed as an alternative classification model. Both traditional and alternative classification models have relied on downward extensions of theory and empirical findings on adult antisocial behavior.

Marsh and Barkley (1996) contended that the elucidation of diagnostic distinctions between adult and childhood mental illness is central to our nomological models and the delineation of developmental pathways from child to adult psychopathology. Interestingly, in the domain of antisocial behavior, the DSM-III (APA, 1980) made a direct link between antisocial personality disorder (APD) and conduct disorder (CD) (APA, 1994; Hart & Hare, 1997; Rutter, 1997; Zoccolillo, Pickles, Quinton, & Rutter, 1992). Meeting criteria for APD requires that the individual has met criteria for conduct disorder during childhood or adolescence. In line with DSM models, the following section reviews traditional approaches to classification of antisocial behaviors in adults and children.

Rogers and his colleagues (Rogers, Duncan, Lynett, & Sewell, 1994; Rogers, Dion, & Lynett, 1992; Rogers, Salekin, Sewell, & Cruise, 2000) have documented the conceptual shifts in diagnostic criteria for antisocial personality disorder in adults. APD

underwent successive shifts from the DSM-II to the DSM-III and DSM-III-R downplaying internal psychological processes and promoting behavioral indicators of a chronic antisocial lifestyle. In moving from the DSM-III-R to the DSM-IV, a significant debate transpired over the inclusion of modified psychopathy items in the DSM criteria for APD (Hare & Hart, 1995; Hart & Hare, 1997; Widiger & Corbitt, 1995). Although interrater and test-retest reliabilities for the APD diagnosis are good (see Widiger & Corbitt, 1995) the DSM-IV criteria have been criticized for the exclusion of psychopathy characteristics as criteria despite empirical support (Hare & Hart, 1995).

Rogers and his colleagues investigated the dimensions of APD via prototypical analysis across different classifications (DSM-II, DSM-III, DSM-III-R, PCL-R, and the proposed criteria for ICD-10 dyssocial personality disorder). In ratings of individual criteria, items that were given highest prototypical ratings by forensic experts included items from the PCL-R relating to manipulation and lack of guilt. In their resulting factor analysis of prototypical ratings, Rogers et al. concluded that current conceptions of APD incorporate both antisocial behavior and psychopathy characteristics.

The DSM-IV has been criticized for the lack of clarity in equating psychopathy with APD (Rogers et al., 2000; Stone, 1993) and the acknowledgement that the APD diagnosis may need to consider personality traits measured by the PCL-R in forensic settings (APA, 1994, p. 647). Adding further to the complexity of the APD diagnosis, Rogers et al. (2000) noted that the inclusion of CD symptoms contributes to the heterogeneity of the DSM-IV APD diagnosis. Moving from the DSM-III-R to the DSM-IV, the CD symptoms were increased from 12 to 15 criteria, resulting in a dramatic rise in

the possible diagnostic variations from 4,017 to 32,647 for CD symptoms alone. Previous versions of the DSM have included developmental criteria focused on frequency of juvenile delinquency (DSM-III; APA, 1980) and severity of antisocial behavior (DSM-III-R; APA, 1987). The DSM-IV lacks specificity in the number of CD symptoms required to meet the CD criterion. For the APD diagnosis, the individual "must have had a history of some symptoms of conduct disorder before age 15 years" (APA, 1994, p. 646). Although the age of onset criteria has been retained across revisions (onset prior to 15 years old), the APD criterion ignores the age of onset subtyping strategy for CD completely.

Traditional Classification Models

The DSM has been described as a traditional clinical-diagnostic system that has utilized a "top down" strategy in defining clinical disorders (Kasius, Ferdinand, van den Berg, & Verhulst, 1997). The "top down" strategy begins from decisions about which disorders should be included and about the criteria for defining the disorders (Verhulst & Achenbach, 1995). Within a top-down model, individual criteria are evaluated based upon reliability (test-retest and inter-rater) and utility estimates (sensitivity, specificity, positive predictive power, negative predictive power). The number of criteria required for a diagnosis is evaluated to maximize the accurate identification of impaired versus non-impaired individuals. The result of the top-down strategy is a diagnostic nomenclature that attempts to reflect current clinical practice. However, changes in individual criteria and diagnostic thresholds are criticized for contributing to fluctuating prevalence rates of individual diagnoses (Angold & Costello, 1996).

The DSM model has adopted a developmental framework by which childhood antisocial behavior is evaluated and diagnosed. Two childhood diagnoses are utilized and emphasis a hierarchical developmental sequence of antisocial behavior. The essential features of ODD are "a recurrent pattern of negativisitc, defiant, disobedient, and hostile behaviors toward authority figures" (APA, 1994, p. 91). CD refers to a "repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated" (APA, 1994, p. 85). Lahey and Loeber (1994) outlined general factors supporting the developmental progression from ODD to CD as follows: (a) ODD behaviors are more prevalent and onset at a younger age, (b) with increasing age, children who continue to display high levels of ODD behavior begin to engage in CD behavior, (c) at each developmental level, some children desist; however, children who continue to exhibit ODD behaviors add CD behaviors. Thus, the authors have described the developmental progression of ODD to severe CD as a process of "accretion" with the prevalence and progression of ODD to CD representing an asymmetrical relationship. Children with severe CD begin with mild ODD behaviors but a large number of ODD children do not progress to severe CD (Frick, 1998b; Lahey & Loeber, 1994).

In a recent review of disruptive behavior disorder outcomes, Frick and Loney (1999) documented that children and adolescents with conduct problems show temporal stability in the rates of antisocial behavior. Frick and Loney (1999) reviewed early prospective studies (see Olweus, 1979) that found an average stability coefficient of .55 between two assessment periods over varying time periods (6 months to 21 years). In

community samples, kappa coefficients for CD diagnoses ranged from .34 to .40 between initial assessment and 2-year follow-up (Cohen, Cohen, & Brooks, 1993).

A number of methodological factors may influence estimates of CD stability. Of the studies reviewed by Frick and Loney (1999) age of the samples varied from 6 to 18 years old. Length of follow-up varied from 8 months to 24 years. In addition, operationalization of CD and type of informants also varied. Lahey et al. (1995) attempted to address these limitations by measuring CD diagnosis annually for a 4-year period in 171 clinic-referred boys age 7 to 12 at initial assessment. Only 33 of 65 (50.7%) who met CD criteria at Year 1 met criteria again in Year 2. Of the 65 boys who met CD criteria at Year 1, 88.0% met criteria for CD again at least once during the subsequent three assessments. However, of the original 65 boys, only 33 (50.7%) met criteria again in Year 4. The prevalence rates reported by Lahey et al. indicate yearly fluctuations across a 4-year period. An analysis of individual symptoms indicated that approximately half of the boys with CD who did not meet criteria in each successive year exhibited two CD symptoms.

The developmental hierarchy (Lahey & Loeber, 1994) provides a conceptual framework to understand the relationship between age, symptom severity, and progression. The contrasting prevalence rates found for CD suggest that type of measurement and length of follow-up may overestimate the stability of CD. Prospective data by Lahey et al., (1995) suggest moderate stability and yearly fluctuations. However, it is important to examine symptom severity even in subclinical levels of CD. By

definition, children with disruptive behavior disorders have significant impairment in social, emotional, and educational functioning.

The literature on childhood disruptive disorders stress that comorbidity is the rule rather than the exception (Eiraldi, Power, & Nezu, 1996; Forness, Kavale, & Walker, 1999; Frick, 1998b; Stahl & Clarizo, 1999). Research which ignores comorbidity rates may produce spurious results and generate inaccurate conclusions about the clinical construct under investigation (Caron & Rutter, 1991). In reviewing the traditional diagnostic comorbidity patterns will be discussed.

Evolution of ODD Diagnosis

Oppositional Defiant Disorder (ODD) was added in the DSM-III (APA, 1980) as a diagnostic category to identify a pattern of disobedient, negativistic, opposition to authority figures without the violation of basic rights found in CD (Angold & Costello, 1996; Frick, 1998b; Hinshaw & Anderson, 1996; Lahey et al., 1994; Loeber et al., 1992). The DSM-III diagnostic criteria included symptoms, such as violation of minor rules, temper tantrums, argumentativeness, and stubbornness (APA, 1980). Paralleling changes in CD, the DSM-III-R increased dramatically the diagnostic threshold of ODD from 2 in DSM-III to 5 criteria in the DSM-III-R. Four additional criteria were also added to the DSM-III-R: (a) blames others for mistakes, (b) often touchy or easily annoyed, (c) often angry and resentful, spiteful or vindictive, and (d) uses obscene language.

According to Rey (1993), the number of criteria and diagnostic threshold were increased to counter the criticism that ODD could not be distinguished from normal childhood behavior. When converted into rating scale format (0 = not at all, 1 = just a

little, 2 = pretty much, 4 = very much), Rey found that ODD criteria had high internal consistency (alpha = .85). Rey (1993) reported that the DSM-III-R threshold criteria of 5 produced sensitivity and specificity rates of .80 and .79 respectively when compared to clinician-generated diagnosis. Waldman and Liliendfeld (1991) examined utility estimates for DSM-III-R ODD symptoms by comparing individual symptoms to clinical diagnoses generated from teacher-rating scales on 105 school children ages 8 to 12. The researchers found that four symptoms were particularly useful as both inclusion and exclusion criteria for ODD (spiteful, swears, angry/resentful, and actively defies others). These four criteria had individual rates of PPP ranging from .89 to .93 and NPP rates ranging from .90 to .95. These two studies offer empirical support for the DSM-III-R diagnostic criteria. However, reporting the internal consistency of the ODD criteria provides little information concerning the ability of clinicians to make a dichotomous distinction between the presence or absence of an individual symptom. In addition, the above studies fail to account for fluctuating base rates across different samples.

In moving from the DSM-III-R to the DSM-IV, ODD criteria changed very little leading Hinshaw and Anderson (1996) to conclude that the validity of the ODD diagnosis is still an unresolved issue. The authors stated that ODD criteria require considerable clinical judgment in determining whether ambiguous criteria (e.g., angry, spiteful or vindictive, deliberately annoys people) are beyond developmental expectations. Angold and Costello (1996) have elaborated on this criticism in stating that little is known about the prevalence of ODD behavior at different ages. Researchers have established arbitrary thresholds in the development of structured interviews (i.e., behavior must occur once per

week) in order to establish the presence of a specific symptom. However, these thresholds require empirical investigation to determine the rate at which individual ODD behaviors are beyond normative expectations.

Regarding outcome, the major empirical effort has been to document the developmental progression from ODD to CD (see Frick & Loney, 1999). In the Developmental Trends Study (Lahey et al., 1995), 82.3% of the boys who developed CD in the third and fourth years of the study were diagnosed with ODD at some point earlier in the study (Lahey & Loeber, 1994). However, different rates of progression have been found in boys (ages 7 to 12) originally diagnosed with ODD: Approximately 25% developed CD at the initial three-year follow-up (Loeber, Keenan, Lahey, Green, & Thomas, 1993). Approximately one-half of the ODD-diagnosed males maintained the ODD diagnosis without progression to CD (Hinshaw, Lahey, & Hart, 1993).

The empirical question remains whether ODD and CD are distinct diagnostic entities (Loeber, Lahey, & Thomas, 1991) or expressions of the same underlying etiology with varying levels of severity (Quay, 1999). A possible explanation for the relationship between ODD and CD is that age is a diagnostic confound. The majority of ODD criteria can be exhibited by young children (Quay, 1999). However, CD criteria such as stealing with confrontation, school truancy, breaking and entering, and running away from home overnight may not be within the developmental capacities of many young children.

Evolution of CD Diagnosis

The diagnosis of CD was first articulated in the DSM-III (APA, 1980) and consisted of both overt and covert criteria. Examples of overt criteria include repetitive and persistent aggressive conduct such as physical violence or theft. Examples of covert criteria include an inability to feel guilt or remorse, failure to establish normal degree of affection or empathy. The DSM-III CD diagnosis was subtyped on two dimensions: socialized versus undersocialized, and aggressive versus nonaggressive. As noted by Hinshaw and Anderson (1996), this subtyping yielded poor reliability primarily due to the infrequency of undersocialized, nonaggressive children.

The DSM-III-R (APA, 1987) contained substantial changes in CD criteria. The diagnostic threshold was increased from 1 to 3 symptoms with a minimum period of 6 months. These changes were introduced to increase the association between the diagnosis and adverse adult outcomes (Lahey et al., 1994). Research had shown that the diversity of antisocial acts committed at an early age predicted chronic antisocial functioning and recidivism in adolescence and adulthood (e.g., Hinshaw, 1994; Stattin & Magnusson, 1989).

Changes occurred in both symptoms and subtyping of CD. Aggressive CD symptoms were expanded with the addition of physical cruelty to animals and use of a weapon in more than one fight. Subtyping was no longer grouped based on levels of socialization and aggression. Instead, the subtyping was altered to include three forms: (a) group, (b) solitary aggressive, and (c) undifferentiated subtypes. Regarding DSM-III-R, McBurnett and Pfiffner (1998) argued that the de facto CD subtypes were

psychopathic and delinquent CD. Psychopathic CD fits best with the classification of solitary aggressive CD. According to McBurnett and Pfiffner (1998), this subtype is characterized by aggressive, disruptive, noncompliant, hyperactive, and restless behavior. The DSM-III-R subtyping strategy stressed that antisocial behavior varied (overt to covert acts) and was influenced by social bonds (negative peer identification). However, the change in subtyping strategies did little to clarify the operationalization of the socialization component.

The DSM-IV (APA, 1994) also made significant changes in the diagnosis of CD. Although the minimum threshold of criteria was maintained at three symptoms, the duration of symptoms was doubled from 6 to 12 months with at least one criterion required to be present during the past 6 months. This change in duration was implemented to avoid applying the CD diagnosis to youths who had exhibited three symptoms within the past year but who were symptom free for at least the last 6 months. Unlike its predecessors, DSM-IV organized symptoms into four categories: aggression toward people and animals, destruction of property, deceitfulness or theft, and serious violations of rules. Results of the DSM-IV field trials (Lahey et. al., 1994) found that the 1-year time window increased the reliability of the diagnosis both in terms of test-retest (kappa = .64) and interrater reliability (kappa = .57).

An important change in the DSM-IV criteria was the elimination of aggression as a subtyping characteristic. Instead, criteria are categorized in terms of severity as mild, moderate, and severe. The three severity specifiers are anchored to frequency of CD criteria and harm to others. DSM-IV also adopted a separate subtyping based upon age

of onset: (a) childhood onset requires at least one CD criterion prior to age 10, and (b) adolescent-onset requires the absence of any CD criteria prior to age 10. Caspi and Moffitt (1995) posited that the subtyping strategy based on severity and age accounts for behavioral outcomes that fluctuated due to age (i.e., earlier onset children showing greater behavioral disturbance). Research has shown that children with onset prior to age 10 typically exhibit more serious physical aggression, meet criteria for ODD earlier in childhood, experience peer and academic failures, and have a greater likelihood of persistent CD symptoms (Hindshaw & Zupan, 1997). Relying on severity and persistence, Caspi and Moffit (1995) argued that the age subtyping had important treatment implications by suggesting a chronic disease model for early onset CD.

Limitations of CD. Clarizo (1997) critiqued the DSM-IV conceptualization of CD by highlighting etiological and phenomenological limitations. Perhaps his most significant criticism relates to the frequency and duration of symptoms. The requirement of 3 out of 15 symptoms results in children diagnosed with CD with completely non-overlapping symptomatology. In addition, DSM-IV criteria reflect a gender bias toward males in that current criteria do not identify most preadolescent girls with early onset antisocial behavior (Zoccolillo, Tremblay, & Vitaro, 1996).

In examining CD subtypings, past commentaries have focused on the age-of-onset subtyping without devoting attention to the severity specifiers. This author proposes that additional problems exist with the severity specifiers. The mild and moderate severity levels incorporate both frequency and severity of harm without denoting what constitutes harm. For example, is minor harm relegated to destruction of property or physical fights

that do not result in an injury? The severe specifier requires either multiple CD problems or "considerable harm to others." "Considerable harm to others" appears to incorporate aggression as the key feature. Utilizing the severe specifier without acknowledgement of which feature (multiple problems or level of harm) clouds the overall diagnostic picture.

Longitudinal Studies of CD. Stability of childhood antisocial behavior has been the subject of a series of longitudinal studies (Lahey et al., 1995; Loeber, 1991; McMahon, 1994). Synthesizing the results from these studies is problematic due to varying definitions of childhood antisocial behavior (different DSM criteria, descriptions in official court records, and findings of delinquency with CD). In addition, two key variables (i.e., time frames for follow-up and operationalization of outcome measures) makes direct comparisons of longitudinal studies problematic.

Despite these limitations, a number of general trends are apparent. First, when using official court records, 50 to 70% of youths who are arrested for delinquent acts during childhood or adolescence are also arrested in adulthood (Loeber, 1991; Robins, 1966). Second, approximately 40% of boys and 35% of girls meeting criteria similar to DSM-III-R CD in childhood later met criteria for APD (Zoccolillo, Pickles, Quinton, & Rutter, 1992).

Comorbidity with CD. Research has shown significant patterns of comorbidity with other disruptive disorders. In samples of CD children, Frick (1998b) reported the proportion of children with ADHD ranges from approximately 65% to 90% (Abikoff & Klein, 1992; Stewart, Cummings, Singer, & DeBlois, 1981; Trites & Laprade, 1983). Eiraldi, Power, and Nezu (1996) investigated DSM-IV subtypes of ADHD and comorbid

CD. Using a combination of structured interviews and self-report measures across three sources (parent, teacher, and child), the researchers found children in the ADHD-Combined subtype were six times (odds ratio = 6.63) as likely as children in the control group to meet criteria for CD. The odds ratio for children in both the ADHD-Inattentive and control group was nonsignificant.

Research has also shown that children with CD show comorbid substance use and abuse disorders (Stahl & Clarizo, 1999). Myers, Stewart, and Brown (1998) conducted a prospective study of longitudinal outcomes of comorbid CD and substance abuse disorders. A concordance of 63.0% was found between participants with CD and substance abuse. In addition, CD participants with substance abuse were found to have greater number of adult APD diagnoses, earlier onset of CD, and greater frequency of CD behavior, than their nonabusing counterparts. Stahl and Clarizo (1999) reported odds ratios varying from 9.8 to 11.4 for disruptive behavior disorders (CD and ODD) and substance abuse disorders.

Comorbid patterns between CD and internalizing disorders vary across community and clinical samples. Frick (1998b) reviewed studies which found higher rates of comorbidity between CD and anxiety in clinical samples (approximate range of 60 to 75%) compared to community samples (approximately 22 to 33%; Russo & Beidel, 1994; Walker et al., 1991; Zoccolillo, 1992). Research has produced mixed results on the behavioral expression of CD in children and adolescents with comorbid anxiety and CD. Ollendick, Seligman, and Butcher (2000) found no differences in age of first offense, number of offenses, and severity of offenses between comorbid groups and either pure

CD or controls. In contrast, Stahl and Clarizo (1999) reviewed data based on DISC diagnoses of conduct and anxiety disorders suggesting that participants with comorbid CD and anxiety endorsed a more severe CD symptom pattern than either the CD or anxiety disorders alone. The age of the child may serve as a moderating variable in the outcomes of comorbid CD and anxiety. Frick (1998b) noted that the presence of anxiety in young children with CD is correlated with less severe behavioral disturbances.

Research has also addressed comorbidity between CD and depression with disparate findings. Angold and Costello (1996) found low rates of comorbidity between CD and major depression (approximately 9 to 13%). Patterns of comorbidity between depression and CD did not significantly differ between mild (20%) and severe (27%) major depression on the K-SADS (Biederman, Faraone, Mick, & Leleon, 1995). However, comorbid rates were much higher than the rates reported by Angold and Costello (1996). Once again this finding may be attributed to sampling differences comparing community samples to clinical samples.

Regarding outcomes of comorbid CD and depression, Capaldi (1992) viewed depression as secondary to CD with the co-occurrence not altering the course or persistence of the CD diagnosis. However, Frick (1998b) suggested that depression may be an important consideration in CD youth due to the increased risk for suicidal ideation. In their review of the comorbidity literature, Hinshaw and Anderson (1996) concluded that the results are inconclusive whether major depression precipitates behavioral disturbance or CD leads to dysphoria and major depression.

In summary, comorbid CD with externalizing and internalizing disorder results in varying patterns of symptom severity and behavioral disturbance. Higher rates of comorbidity are found with ADHD and associated with a higher level of behavioral disturbance and persistence across time. The literature is inconclusive regarding the comorbid effects of CD and internalizing disorders. More prospective research is needed examining comorbid and pure diagnostic groups on behavioral outcome variables. This research must examine age of onset and course of CD behavior in order to elucidate potential moderating effects of the internalizing disorders.

In conclusion, the heterogeneity in CD criteria (e.g., breaking curfews, physical fights, to deliberate fire setting) makes the diagnosis per se problematic as a predictor variable of later antisocial behavior and adult criminality. Heterogeneity is the result of fluctuating symptom base rates which affects symptom PPP (conditional probability of the disorder being present given the presence of the symptom) and NPP (conditional probability of the disorder being absent given the absence of the symptom).

Frick et al., (1994a) examined symptom utility estimates for the disruptive behavior disorders utilizing corrected utility estimates (cPPP and cNPP). Computational formulas provided by Frick et al. indicate that PPP and NPP are corrected for chance agreement by subtracting the number of agreements expected by chance from the number of observed agreements. With high base rates (i.e., .27 to .34), items (i.e., often lies, steals, and physical fights) had moderate levels of cPPP (.54 to .64) and cNPP (.48 to .67). With low base rates (i.e., .03 to .11) items (i.e., rape, use of weapons, and firesetting) resulted in high cPPP (.73 to 1.0) but extremely low cNPP (.08 to .24).

Considering the 455 possible 3-symptom combinations, mixing symptoms with high PPP with low PPP symptoms may diminish the predictive validity of CD. A high PPP symptom may be highly indicative of the presence of the diagnosis and associated with a specific outcome. Low PPP symptoms increase the potential for diagnostic error and thus decrease the likelihood of predicting a particular outcome. Ultimately this issue centers on fluctuating base rates across populations. However, the current system assumes equal weighting of individual symptoms in determining the CD diagnosis. Estimates of symptom severity and overall frequency of symptoms (i.e., use of specifiers in the DSM-IV) are viable alternatives to increasing the predictive validity of this diagnostic category.

Alternative Classification Models

The current DSM-IV categorical classification emphasizes inclusion criteria over exclusion or outcome criteria (see Rogers, 1995). In reference to CD and ODD, the emphasis on inclusion criteria, may constrain the external and predictive validity of the clinical diagnoses. Research investigating dimensional ratings and age of onset will now be reviewed with a focus on how these two alternatives may clarify our traditional classification systems for childhood antisocial behavior and improve predictive validity.

Dimensional Diagnoses

An alternative to DSM categorical classification is dimensional scoring of existing diagnostic criteria. Frauenglass and Routh (1999) have argued that the dimensional approach has three advantages. First, the dimensional approach utilizes multivariate statistical analyses which has greater sophistication than univariate

approaches traditionally used with categorical classifications. Second, dimensional approaches can be adjusted to different developmental levels. Third, dimensional analysis are more easily linked to treatment by focusing on the frequency and intensity of a particular syndrome. However, categorical approaches also have several advantages. For example, it allows for the synthesis of diagnostic findings across clinical settings and provides a distinct marker for longitudinal research. A limitation of both categorical and dimensional approaches is the loss of symptom variability. The reduction of symptoms to a dichotomous classification ignores relevant information regarding symptom severity. For dimensional approaches, at what points do variation along the dimension represent clinically significant differences? Keeping these advantages and disadvantages in mind, research on dimensional scoring is reviewed.

Fergusson and Horwood (1995) assessed 935 New Zealand children at age 15 for DSM-III-R criteria of ODD, CD, and Attention Deficit Hyperactivity Disorder (ADHD). Categorical diagnoses and dimensional variables (i.e., frequency of symptoms ranging from asymptomatic to symptomatic) were established. Participants were re-interviewed at age 16 to establish the presence of several external criteria of antisocial behavior (e.g., substance use, school drop out, and juvenile offending).

Results for ODD and CD indicated distinct linear trends for the dimensional variables. Higher symptom scores were significantly related to higher percentages on the outcome variables. Categorical diagnoses also produced significant associations with all outcome variables. In order to compare the strength of the association between categorical diagnoses and dimensional variables, psi coefficients were computed as an

estimate of the product-moment correlation between the measure and outcome. For all three diagnostic groups, dimensional variables demonstrated stronger associations to outcomes than categorical diagnoses. Psi coefficients for CD ranged from .27 to .45 (M = .37) for dimensional variables and .15 to .28 (M = .23) for categorical diagnosis. Psi coefficients for ODD ranged from .29 to .32 (M = .31) for dimensional variables and .14 to .26 (M = 18) for categorical diagnoses.

Fergusson and Horwood (1995) concluded that dimensional scoring of the disruptive behavior disorders demonstrated distinct linear trends with the external outcomes. The researchers further concluded that greater strength in association between dimensional scores and external outcomes supported stronger predictive validity for dimensional scoring. However, several caveats warrant mention. First, juvenile offending was operationalized as recurrent offending without any mention of seriousness of the offenses. Second, age of participants and follow-up time period were restricted limiting the generalizability of the findings. Third, both categorical diagnoses and dimensional scoring of symptoms were tested independently ignoring the potential confound of comorbidity among the disruptive behavior disorders. The researchers did not address the additive combinations of multiple diagnoses and plausible increase in poor behavioral outcomes. Finally, the researchers noted that the disruptive behavior disorders have dimensional properties that supported the current research. However, for other diagnostic conditions, a dimensional model may be inappropriate.

Rogers et al. (1997) utilized both categorical and dimensional scoring of ODD and CD symptoms to examine predictors of adolescent psychopathy. Regarding

dimensional scores, Rogers et al. found that the number of aggressive CD symptoms and total rate of deceit/theft symptoms were predictive of adolescent psychopathy among a sample of dually diagnosed adolescents.

Age of Onset Typology

In a longitudinal review of antisocial behavior patterns in adolescent males, Moffit (1993) provided a dual taxonomy based on age of onset: "adolescence-limited" and "life-course-persistent" groups. The adolescence-limited group is generally described as the onset of temporary antisocial activity during adolescence. The life-course-persistent group refers to a small group of males with onset at approximately age five that display high rates of antisocial behavior which continues across their lifespan.

In support of the life-course persistent group, Moffit (1993) argued that distinct neuropsychological vulnerabilities, temperament, and criminological environments contribute to early onset and life-course persistence of antisocial behavior in this group. The theory associated with the life-course-persistent group emphasizes a constant reciprocal interaction between trait and environmental reactions. The life-course-persistent subtype has strong predictive validity because age of onset is strongly associated with chronic antisocial behavior in adulthood (Lahey et al., 1995; Loeber, 1982; Loeber, 1991; Moffit, 1994; Patterson, 1982; Robins, 1966; Wolfgang, Figlio & Sellin, 1972).

Moffit's (1993) group of adolescent-limited antisocial behavior is consistent with the adolescent onset subtype of the DSM-IV. Moffit argued that adolescent-limited antisocial behavior is motivated by the gap between biological and social maturity and is

influenced by social learning and principles of reinforcement. Descriptive data of the adolescent-limited group have widespread prevalence, modal onset in early adolescence, and recovery by young adulthood. Empirical results by Farrington (1986a) indicated that approximately 75% of delinquent males with adolescent-onset desisted by early adulthood. A controversial proposition by Moffit (1993) is that the antisocial behavior engaged in by the adolescent-limited group is not pathological behavior but represents a variation in normative adolescent behavior.

Silverthorn and Frick (1999) offered two criticisms of Moffit's dual taxonomy. First, they found this model is inapplicable to female delinquents. Female delinquents had a later age of onset than boys but similar outcomes that were consistent with Moffit's findings for childhood-onset conduct problems in boys. This finding led the researchers to propose a delayed-onset trajectory in females. Second, Silverthorn and Frick (1999) cited longitudinal research with childhood-onset delinquent youth (i.e., analogous to lifecourse-persistent) who desist prior to adolescence. Moffit's dual taxonomy does not predict desistance. Rogers, Johansen, Chang, and Salekin (1997) suggested another possible caveat. When utilizing age of onset as a predictor of psychopathy, Rogers et al. concluded that age of onset may be confounded by gender and ethnicity.

What conclusions can be drawn about the current classifications of antisocial behaviors in children? First, the DSM-IV conceptualization of CD adheres to the polythetic model which contributes to diagnostic heterogeneity thereby limiting predictive validity. Second, Moffit's research supports the subtyping of CD by age of onset; however, the relationship between gender and time of onset must be addressed.

Silverthorn and Frick (1998) have argued for different trajectories for males and females and suggested that discontinuity among the life-course-persistent group for females renders the subtyping based solely on age problematic. Third, dimensional scoring of disruptive behavior disorder symptoms (e.g., Fergussson & Horwood, 1995; Robins & McEvoy, 1990; Rogers, et al., 1997) has resulted in superior predictive power to categorical diagnosis on important external criteria.

Construct of Psychopathy

Traditionally, psychopathy is described as a constellation of emotional, interpersonal, and antisocial behaviors characterized by egocentricity, manipulativeness, deceitfulness, lack of empathy, absence of guilt or remorse, and a propensity to violate social and legal norms (Hare, 1998a). The Mask of Sanity by Cleckley (1941, 1976) is generally recognized as a classic conceptualization of the clinical construct of psychopathy. Cleckley's (1941, 1976) conception of psychopathy de-emphasized the antisocial motivation and stressed affective dysfunctions highlighting the absence of anxiety as an important explanatory factor (Newman, 1998). Clecklian criteria are viewed as providing the theoretical basis for understanding psychopathy. In moving from theory to measurement, Hare has championed the Psychopathy Checklist (PCL; Hare, 1980), and subsequent version (PCL-R; Hare, 1991), as the operationalization of Cleckley's conception of psychopathy. Although Hare is consistent with viewing the syndrome as the Clecklian constellation, Rogers (1995) outlined the dissimilarities between the PCL and Clecklian criteria.

Hare (1996; 1998a) has argued that psychopathy is the single most important clinical construct in the criminal justice system. This proposition has considerable empirical support. Researchers (Hart, 1998; Hemphill, Hare, & Wong, in press; Hemphill, Templeman, Wong & Hare, 1998; Salekin, Rogers, & Sewell, 1996) have concluded that psychopathy as measured by the PCL-R is an important predictor of recidivism. In addition, research (Blackburn, 1993; Hare, 1996; Losel, 1998; Serin, 1995; Yochelson & Saminow, 1977) has also shown that psychopaths have a high frequency of institutional management problems and poor treatment response.

However, the use of the PCL is not without controversy (see Hare, 1998b). Debate over the proper use of total scores for a dichotomous classification of psychopathy exists (Ogloff & Lyon, 1998). Salekin et al. (1996) demonstrated that different cut scores are associated with varying classification rates and effect sizes in predicting recidivism. Using a single score to assess psychopathy ignores the dimensional aspect of the total score. In addition, reification of a single score for the classification of psychopath versus nonpsychopath ignores the standard error of measurement.

Hare (1998b) has addressed some concerns with the use and misuse of the PCL-R. First, he reiterated the conclusions reached by others that psychopathy should not be confused with adult antisocial personality disorder (see also Rogers et al., 1994). Second, he asserted the dichotomous classification of psychopath versus nonpsychopath often blurs the importance of Factor 1 and Factor 2 distinctions. Third, Hare is concerned about the potential for misapplication of the dichotomous rating of psychopath versus

nonpsychopath in important legal decisions concerning risk assessment, parole decision making, and restricting treatment. Keeping in mind the development, application, and potential problems with the construct of psychopathy in adults, this review now turns to empirical research and theory that has focused on the dimensions of psychopathy and the assessment of this important construct in children and adolescents.

Dimensions of Psychopathy - The PCL and Subsequent Versions

In moving from theory to measurement, the PCL was originally developed based on the ability of its items to discriminate psychopaths from nonpsychopaths (Hart, Hare, & Harpur, 1992; Rogers, 1995). As previously mentioned, there are similarities between the PCL and the 16 criteria proposed by Cleckley (see Rogers, 1995). To assess the PCL's correspondence to theory, the underlying dimensions warrant investigation.

The PCL was originally devised by Hare and his colleagues (Hare, 1980; Hare, 1991; Hare, 1998a; Hare & Frazelle, 1980) to operationalize the assessment procedures used to identify psychopaths. Hare (1980) began this work by identifying 100 items that represented clinical judgments of traits, behaviors, and indicators of psychopathy. Without reporting the statistical approach, Hare reported that this list was refined to 22 items which best discriminated between inmates with low and high global psychopathy ratings. Each item was scored on a 3-point scale (not present, uncertain, present). Average inter-rater reliability was .93 with internal consistency of the scale reported as .88. Total checklist scores were significantly correlated with global ratings of psychopathy ($r = .83$).

Hare (1980) investigated the underlying factor structure of the 22-item checklist through principal components analysis with a varimax rotation. A five-factor solution accounting for 61% of the variance was obtained. The first two factors accounted for the most variance (27.3% and 13.0%). Factor 1 reflected an impulsive and unstable lifestyle while Factor 2 reflected self-centeredness, callousness and lack of empathy. Factor 3 accounted for 8.0% of the variance and reflected superficial relationships. Factor 4 accounted for 6.9% of the variance and represented early and chronic antisocial behavior. Factor 5 accounted for 5.7% of the variance and appeared to reflect impulsivity and deception. Using a benchmark of .40, only 1 item (lack of affect and emotional depth) was identified as a crossloading. Factor scores were calculated and found to be significant predictors of the global psychopathy rating and to discriminate psychopaths from nonpsychopaths. A stepwise discriminant function analysis produced a correct classification rate of 97.0% with Factor 2 (self-centeredness, callousness, lack of empathy) being the highest contributor to the function (beta weight = .67). These 22 items became the Psychopathy Checklist (PCL; Hare, 1980).

Harpur et al. (1988) utilized six separate data samples, comprising over 1,000 participants to examine the factor structure of the PCL. The researchers stressed the importance of factor structure stability in order to guide theory and research. Harpur et al. offered three criticisms of the Hare (1980) study: (a) small sample sizes, (b) questionable interpretation of the magnitude of congruence coefficients, and (c) reliance on the eigenvalues greater than 1 rule. Utilizing the six samples, Harpur et al. split each sample into comparable halves and performed identical factor analyses on each half.

Within each sample, correlations between factor scores were calculated and represent comparability coefficients. One caution against the use of correlations as an estimate of comparability is the masking of communality differences at the item level when using the split-sample method (Hair, et al., 1995). A second level of analyses involved common factor analysis using an oblique rotation. Each solution was compared across the samples by congruence coefficients. Results for factor comparability indicated that either two or three factors were comparable across three samples. Using .85 as the benchmark for acceptable congruence, the three-factor solutions produced unacceptable congruence estimates for the third factor in 4 of the 6 samples. The two-factor solution produced congruence coefficients ranging from .85 to .95 for Samples 1-5. Despite the use of multiple samples and a large number of participants, one important limitation must be noted with using congruence analysis. Congruence coefficients are calculated using only the factor loading vectors from the various samples. Hair et al. (1995) noted that these coefficients are therefore heavily influenced by measurement error. Congruence coefficients are a simple expression of the pattern of relationships across samples. In contrast, analysis of the covariance matrix (utilized in CFA) allows for valid comparisons by testing the replication of the covariance matrix across samples and takes measurement error into account (Stevens, 1996). Thus, CFA is generally viewed as a more sophisticated test of replication and a true "test of theory" (Hair et al., 1995).

Harpur, et al. (1988) developed independent two-factor solutions for the five samples using an oblique rotation and compared this with a common two-factor pattern obtained by pooling all the samples and extracting a two-factor solution. An examination

of the pooled two-factor solution indicates that Item 8 (Lack of Affect and Emotional Depth) loaded on both factors. This item performed poorly across all 5 samples. Item 2 (Previous Diagnosis as a Psychopath) and Item 12 (Promiscuous Sexual Relations) did not load on either factor. In addition, Item 16 (Irresponsible Behavior as a Parent) had a weak loading on Factor 2 (.39) and produced weak loadings (range .26 to .47) across the 5 samples.

Despite the poor performance of individual items, the congruence coefficients were averaged at .97 for Factor 1 and .96 for Factor 2. Thus, the researchers concluded that utilizing the cross-validation procedure, a stable two-factor solution was obtained. Factor 1 was labeled "selfish, callous, and remorseless use of others" and Factor 2 was labeled "chronic, unstable, and antisocial lifestyle." Use of averaged congruence coefficients de-emphasized poor congruence for Sample 5. Five Factor 1 loadings and 5 Factor 2 loadings in Sample 5 were well below the pooled loadings.

The PCL-R (Hare, 1991) has established two oblique, correlated factors (average $\underline{r} = .50$). Two items from the PCL (Previous Diagnosis as a Psychopath and Drug or Alcohol Abuse not Direct Cause of Antisocial Behavior) were dropped in the PCL-R. As noted by Rogers (1995), nine PCL-R items reflect observable changes in wording and concomitant scoring criteria. Factor 1 refers to a constellation of affective and interpersonal dimensions: glibness/superficial charm, egocentricity/grandiose sense of self-worth, conning, pathological lying, callousness, and lack of empathy. Factor 2 refers to a behavioral dimension indicative of a chronically unstable, antisocial lifestyle: proneness to boredom, poor behavioral controls, impulsivity, and lack of long-term goals

(Hare et al., 1990; Harpur, Hakstian, & Hare, 1988; Harpur, Hare & Hakstian, 1989; Templeman & Wong, 1994). These general descriptions of the PCL-R factors have been criticized by Rogers and Bagby (1994) for failure to take into account the strength of individual factor loadings in describing the factors. For example, Rogers and Bagby (1994) noted that the factor descriptions did not include several significant loadings: glibness and grandiosity on F_1, and impulsivity and sensation seeking on F_2.

Recently, Hart, Cox, and Hare (1995) developed the PCL:SV. This version was developed as a screening tool for the presence of psychopathy and has also been validated for use in non-forensic settings (Hart, Cox & Hare, 1995). Confirmatory factor analysis suggested that the two-factor model was a good fit for the validation sample with an average fit index of .93 (Hart et al., 1995). Parameter estimates were consistently high for Factor 1 (range from .61 to .85) and Factor 2 (range from .63 to .80). A single factor solution was tested for the PCL:SV; however, no data regarding this solution was reported in the PCL:SV manual. Average weighted mean correlations between F_1 and F_2 is .53 for the PCL:SV which is similar to correlations found for the PCL-R by Hare (1991).

A critical review of the factor structure of the PCL and subsequent versions indicates statistical support for the two-factor model. However, three caveats apply to the Harpur et al. (1988) study. First, each sample utilized different scoring criteria for Factor 1 (interview) and Factor 2 (file review) with one sample being based on file review only. Second, the reporting of averaged congruence coefficients obscures the discrepancies across individual samples in terms of the magnitude of factor loadings and the lack of

loadings across the samples. Third, the defined dimensions do not appear consistent with factor loadings.

In addition to research investigating the dimensions of psychopathy, researchers have started to focus on the relationship between individual items and their respective subcriteria (Cooke & Miche, 1997; Rogers et al., 2000). Rogers et al. (2000) concluded that the basic foundation of PCL-R and PCL:SV items are the subcriteria that compose each item. However, the psychometric properties of these subcriteria had remained untested. Rogers et al. investigated the psychometric properties of the PCL:SV subcriteria across three forensic samples (male forensic patients, female offenders, and male adolescent offenders). Treating each criterion as a subscale, reliability of the subcriteria were examined by measuring homogeneity. For the adult samples PCL:SV subcriteria evidenced moderately high alphas for Factor 1 ($\underline{M}$ = .86) and Factor 2 ($\underline{M}$ = .77). Subcriteria for Item #12 (Adult Antisocial Behavior) was the only noted exception (alpha = .56). As an estimate of construct validity, the intercorrelations of subcriteria to the respective criterion were compared to other criterion. Item-scale correlations for adults were moderately high ($\underline{M}$ F_1 = .67; $\underline{M}$ F_2 = .58). Item-other correlations were considerably lower ($\underline{M}$ F_1 = .26; $\underline{M}$ F_2 = .20). These results support the construct validity of the PCL:SV subcriteria.

Rogers et al. (2000) also examined the factor structure of the PCL:SV subcriteria via principal axis factoring (PAF) and confirmatory factor analysis (CFA). Results of the exploratory PAF resulted in a two-factor solution accounting for 17.5% and 14.4% of the variance respectively. Factor 1 was labeled "unremorseful, irresponsible, and

emotionally insincere" and Factor 2 was labeled "aggressive, deceptive, and exploitative." The researchers concluded that the majority of subcriteria (23 of 33) produced unique factor loadings corresponding to Factor 1. The magnitude of the factor loadings indicated that self-centered justification of antisocial attitudes, and lack of genuine emotions characterized this factor. Fifteen of 25 subcriteria for Factor 2 produced unique and predicted loadings. Factor 2 emphasized unmodulated expression of anger, deception, and unreliability in relationships. Contrary to Hare (1991), antisocial behavior was not a key component.

Rogers et al. (2000) also evaluated the factor relationships via second-order CFA. The resulting model evidenced a moderate fit (Robust Comparative Fit Index = .85) with all variables loading significantly on the respective factors. This model was obtained based on the multivariate recommendation of moving the subcriteria related to Item #3 (Deceitful/Manipulative) from Factor 1 to Factor 2. Taken together, these results support the subcriteria as forming scales and their relationship to the respective criterion. While resulting in a two-factor solution, the first-order factor structure of the subcriteria suggest a different interpretation for the personality and behavioral dimensions.

What conclusions can be reached about the construct of psychopathy with adult offenders? First, the PCL and subsequent revisions (PCL-R and PCL:SV) provide a relatively stable two-factor solution across multiple samples and settings with male offenders. However, across the revisions, examination of the magnitude of factor loadings suggests possible modifications in the interpretation of the factors. Second, the affective and interpersonal dimension (F_1) shows moderate associations with the

unstable, behavioral dimensions (F_2). Research on the psychometric properties of the PCL and later revisions suggest that the two dimensions can be reliably assessed and have construct validity. These properties support the use of the PCL as the gold-standard in psychopathy assessment.

Predictive Utility of Psychopathy

Meta-analytic reviews show that the PCL and PCL-R have moderate to large effect sizes in predicting both nonviolent and general recidivism (Hemphill, Templeman, Wong, & Hare, 1998; Salekin, Rogers, & Sewell, 1996). Salekin et al. reviewed 18 studies that utilized the PCL or PCL-R to predict violent or nonviolent recidivism. The average effect size across the studies was .68 utilizing Cohen's d as the effect size estimate. In dividing the studies into violent recidivism and institutional violence, general recidivism, and sexual deviance, the largest effect size was found for violent recidivism (average effect size = .79). General recidivism and sexual deviance effect sizes were consistently lower (averaged Cohen's d = .55 and .61 respectively) but still of moderate effect size.

General and sexual deviance effect sizes were moderate while the effect size for violent recidivism reached the benchmark for a large effect size (see Rosenthal & Rosnow, 1991). Although moderate to large effect sizes were found, the researchers noted the range in cut scores influenced the predictive utility in terms of positive predictive power (PPP) and negative predictive power (NPP). Cut scores for the classification of psychopathy varied from 25 to 29 for both the PCL and the PCL-R. Salekin, Rogers, and Sewell appropriately noted that the effect sizes demonstrate the

utility of the PCL/PCL-R as a measure of risk assessment. However, the researchers cautioned that different cut scores produce varying classification rates and averaged effect sizes should not be used as a global benchmark when different cut scores are used for the classification of psychopathy.

The results of a second independent meta-analysis are reported in Hemphill, Hare, and Wong (in press) and extensively discussed in Hemphill, Templeman, Wong and Hare (1998). Hemphill et al. (in press) addressed three methodological limitations of the Salekin et al. meta-analysis: (a) inclusion of both predictive and postdictive studies; (b) inclusion of multiple effect sizes from a single study; and (c) uncommon measures of recidivism (i.e., behavioral outcomes and sexual deviance or arousal). The Hemphill et al. meta-analysis also included a number of unpublished studies not available to Salekin et al.

Hemphill et al. (in press) examined the association between psychopathy and both general and violent recidivism, similar to Salekin et al. (1996). Both dimensional PCL total scores and classifications of psychopathy were tested. Results of dimensional scoring yielded identical correlations between PCL/PCL-R and general ($\underline{r}$ = .27) and violent ($\underline{r}$ = .27) recidivism. Utilizing effect size comparison tables (Rosenthal & Rosnow, 1991), the effect sizes found by Hemphill fall just below the medium benchmark. Across both meta-analyses, effect sizes fluctuated and might reflect differences in methodology or offender characteristics. Based on total scores, the samples were divided into high and low psychopathy groups. Comparable to

dimensional scores, the classification yielded mean phi coefficients for general (r = .36) and violent (r = .27) recidivism.

Hemphill et al. (1998) created a quantified measure of recidivism (Criminal Career Profile = CCP) which allowed for further refinements in empirically testing the predictive power of PCL/PCL-R scores for recidivism. The CCP combined linear regression and survival analysis to calculate an index of recidivism that allows for comparisons of criminal behaviors across groups across a range of time periods. Based upon a prospective 10-year followup of data reported by Wong (1984), the researchers divided psychopathy into low, medium, and high groups and assessed recidivism using the CCP index. Differences were found between the medium and low psychopathy groups and recidivism. Median survival times (i.e., time point at which 50% of participants are expected to recidivate) was approximately 7 years for the low psychopathy group compared to 1.5 years for the medium and high psychopathy groups. Results also found different survival functions for the low, medium, and high psychopathy groups when measuring violent recidivism indicating that the medium and high psychopathy groups (median = 6 years) were convicted of violent crimes earlier than the low psychopathy group (median = 12 years).

Based in part on a review of the above meta-analyses, Hart (1998) concluded that psychopaths are more likely than non-psychopaths to have a history of community and institutional violence, have committed more violent offenses, with acts being "impulsively instrumental" and motivated by material gain, opportunism, and sadism. The results of two independent meta-analyses are consistent in identifying PCL/PCL-R

scores as important predictors of recidivism. These predictions hold across diverse inmate samples and criminal behavior.

Adolescent Psychopathy

Despite its extensive adult literature, psychopathy traditionally has not been examined with children or adolescents. As expected, longitudinal data have indicated that adult antisocial behavior has roots in childhood (e.g., Loeber, 1982; Moffit, 1993; Moffit, 1994; Robins, 1966). Recently, researchers began to develop theories and psychometric instruments for the assessment of adolescent psychopathy (Forth, Hart, & Hare, 1990; Forth, Kosson, & Hare, 1994; Forth & Burke, 1998; Frick & Hare, in press).

Research on adolescent psychopathy has focused on investigating two issues (a) whether adolescent psychopathy conforms to the two-factor adult model, and (b) whether adolescent psychopathy can provide an accurate method to subtype conduct problems. Regarding the latter issue, Lynam (1996, 1997) has argued that research on adolescent psychopathy can strengthen our current classification of delinquency. This argument is based upon the assertion that the diagnostic heterogeneity of the traditional classification systems has limited the predictive validity for recidivism and treatment response. However, a dichotomous classification of psychopathy, based upon a single cut score, may further exacerbate the heterogeneity problem (see Hare, 1998b). Lynam's assertion appears to rely on adolescent psychopathy as a taxon. Conceptualizing psychopathy as a as a taxon (Harris, Rice, & Quinsey, 1994) versus dimensional (Lillienfeld, 1994) has received empirical attention in the adult literature. The research setting (institutionalized versus noninstutionalized) and assessment method (interview versus self-report) may

influence the empirical support for either distinction (Hare, 1985; Levenson, Kiehl, & Fitzpatrick, 1995; Lynam, Whiteside, & Jones, 1999). Identifying clinical characteristics of psychopathic children and adolescents could assist in developing treatment programs and predicting adolescents at risk for recidivism. The next section reviews the potential contribution of adolescent psychopathy to the classification of childhood conduct problems. Following this, empirical research and concomitant theory concerning assessment of adolescent psychopathy is also considered.

Assessing Adolescent Psychopathy with First-Generation Measures

The initial studies examining psychopathy in adolescents utilized the adult psychopathy measures (PCL-R) with modifications in the scoring of individual items and the factor scores. In support of the downward extension, early research noted the stability of psychopathy across the lifespan and the assumption that psychopathic characteristics are likely manifested at an early age. This early research also highlighted the need for early identification in order to promote research on intervention. Scoring modifications to the PCL-R included omitting items relating to parasitic lifestyle and short-term marital relationships. In addition, scoring criteria for items relating to juvenile delinquency and criminal versatility were modified to account for shorter criminal histories of adolescent offenders.

Forth, Hart, and Hare (1990) investigated the utility of a modified PCL with adolescent offenders incarcerated in a maximum-security institution. Using a cut score extrapolated from adult studies, the base rate of psychopathy was 36.0%. As evidence of convergent validity, PCL scores were significantly correlated with the number of CD

symptoms (.64), previous violent offenses (.27), acts of institutional aggression (.46), and subsequent charges or convictions for violent offenses (.26). As hypothesized, the modified PCL scores were negatively correlated with age of first arrest (-.25). A limitation of the study was the absence of data on the correlates between Factor 1 or Factor 2 and the external criteria listed above. Focusing on the total score, the magnitude of the correlations to important external criteria (e.g., violent recidivism) was similar to the adult literature (Hemphill et al., 1998). Institutional aggression demonstrated the highest correlation suggesting its potential use as a short-term predictor of institutional aggression.

Brandt, Kennedy, Patrick, and Curtin (1997) conducted a similar study using the PCL-R in a sample of incarcerated adolescents. The researchers hypothesized that the PCL-R scores would correlate with age at first offense, number of previous offenses, and offense severity. The researchers predicted a negative correlation between Factor 1 and MMPI Scales 2 and 7; however, these correlations (-.08 and -.13 respectively) were nonsignificant. In line with their hypotheses, all Factor 2 scores were positively correlated with behavioral indicators (rs ranging from .27 to .37). In addition, Factor 2 scores correlated with Scale 9 (.23), Scales 4 + 9 (.26), and CBCL Externalizing Scale (.23). The results of the Brandt et al. study indicate that PCL-R scores show stronger associations with offense and other behavioral indicators than psychometric data with similar associations to the adult recidivism literature.

Murdock-Hicks, Rogers, and Cashel (2000) examined MMPI-A (Butcher et al., 1992) scales and modified PCL:SV scores as potential predictors of institutional

infractions among 120 male juvenile offenders. Infractions were composed of violent (assault or attempted assault), self-injurious (self-mutilation or suicidal gestures), and nonviolent infractions (disruptions in programming, possession of contraband). Psychopaths (M = 23.18, SD = 23.32) had significantly more total infractions than nonpsychopaths (M = 9.01, SD = 9.61). The researchers also noted that a small proportion of psychopaths demonstrated a tendency to engage in repetitive violent infractions compared to nonpsychopaths. However, the PCL:SV performed poorly in prediction of infractions.

Using hierarchical multiple regression, MMPI-A correlated scales (F, 1, 3, and 6) explained nearly twice the variance (ΔR^2 = .20) with PCL:SV Factors contributing very little to the prediction of total infractions. Factor 2 added an ΔR^2 of .07 while Factor 1 was nonsignificant (ΔR^2 = .01; p = .25). Regarding violent infractions, participants were grouped (violent and nonviolent) and subjected to a stepwise discriminant analysis. The resulting discriminant function was statistically significant with MMPI-A Scales 6 and 9 entering the function. The PCL:SV did not enter the discriminant analysis and was essentially uncorrelated with the discriminant function (r = .09).

Murdock et al. provided information regarding the association between psychopathy and conduct disorder. PCL:SV total scores were uncorrelated with the (a) number of CD symptoms (r = .11) as measured by the K-SADS, and (b) antisocial characteristics (r = .06) as measured by the MMPI-A Scale 4. Slightly higher correlations were found for Factor 1 (CD symptoms, r = .15). A modest relationship was found for Factor 2 and CD only (CD symptoms r = .23; Scale 4, r = .04). Raising concerns about

ethnic differences, Murdock et al. reported moderate correlations for total PCL:SV scores for African Americans (r = .57) and negligible correlations for Anglo Americans (r = -.06) and Hispanic Americans (r = .15). This finding led the researchers to conclude that PCL:SV results cannot presently be generalized across ethnic backgrounds of adolescent offenders.

Using the PCL-R as the "gold standard" for psychopathy, the utility of the MMPI-A for predicting psychopathy was investigated by Hume, Kennedy, Patrick and Partyka (1996). Comparing psychopaths and nonpsychopaths, no mean differences were found on mean MMPI-A clinical scale T-scores. Examination of individual scales indicated that Scale 4 had the highest mean elevation for both groups (i.e., psychopaths, M = 60.55 and nonpsychopaths, M = 60.46). A two-group discriminant function using MMPI-A scale scores as predictors of PCL-R scores resulted in a significant discriminant function with a 78.0% correct classification. Although the discriminant function was significant, Scale 9 was moderately correlated with the discriminant function (r = .27) while Scale 4 was uncorrelated (r = .00). The results of this study suggest that MMPI-A scales are not likely to serve as effective screens for psychopathy in incarcerated adolescent males.

Myers, Burket, and Harris (1995) investigated the PCL-R in relation to delinquent behavior and conduct disorders among adolescent inpatients. The modest sample of 30 adolescent inpatients was divided into delinquent and nondelinquent groups based on results from the Diagnostic Interview For Children and Adolescents (DICA-R; Kaplan & Reich, 1991). The researchers found significant group differences in total PCL-R scores on a variety of delinquent behaviors (i.e., stealing, use of weapons in a fight, injuring or

killing animals) and conduct disorder. However, these results are expected in that the delinquent behaviors chosen for comparison represent severe conduct problems. Participants with narcissistic and avoidant personality disorders, as measured by the SIDP-R (Pfohl, Blum, Zimmerman, & Stangl, 1989), had higher PCL-R scores than those without these disorders. The results of this study suggest that PCL-R scores show predictable patterns with indices of violent behavior in hospitalized adolescent males. Two caveats limit the interpretation of these results. First, the same researcher administered both SIDP-R and PCL-R interviews. Although, independent raters reviewed the PCL-R item scores, disagreements were resolved via group discussion and consensus; this procedure is vulnerable to criterion contamination. Second, following the DSM diagnostic guidelines, personality disorders should not be diagnosed routinely in adolescents. In addition, the SIDP-R was not validated or normed for use with this population.

Studies utilizing adolescents have shown that modified PCL-R scores evidence similar patterns of correlates to important external criteria found in the adult psychopathy literature. However, results from the Murdock et al. (in press) indicate disparate results for the PCL:SV in predicting institutional infractions. This study also raised the possibility of ethnic differences in PCL:SV scores which warrants further investigation. Taken together this body of research has served as a catalyst for the development of a second generation of psychopathy measures validated for use with adolescent populations.

Assessing Psychopathy with Second-Generation Measures

The development of the second-generation measures has focused on assessing both personality and behavioral dimensions found in the adult two-factor model (McBurnett & Pfiffner, 1998). Adolescent measures have focused on (a) modification of all PCL-R items to facilitate scoring with adolescents (Forth & Burke, 1998), and (b) development of both parent informant and child ratings (Frick, 1998b, Frick & Hare, (in press).

Child Psychopathy Scale. Lynam (1997) attempted to place childhood psychopathy into the two-factor adult psychopathy model by examining the construct validity of the Child Psychopathy Scale (CPS; Lynam, 1997) with measures of delinquency and impulsivity. The CPS was rationally developed from the PCL-R and composed of 41 items drawn from the Child Behavior Checklist (CBCL; Achenbach, 1991) and a version of the California Child Q-Set (CCQ; Block & Block, 1980). Thirteen of the 20 PCL items were operationalized into scales and reported in an appendix (p. 438; Lynam, 1997). Items that did not reflect child experiences were not included (promiscuous sexual behavior, short-term marital relationships, and revocation of conditional release) similar to Forth et al. (1990). Quite problematic was the exclusion of an additional 3 items (grandiose sense of self-worth from Factor 1; need for stimulation/proneness to boredom and early behavior problems from Factor 2). In a footnote, Lynam indicated that a CFA of the "scales" supported the two-factor model; however, the factors were correlated (r = .95). Based on these results, Lynam only used

CPS total scores for the present analysis. Unfortunately, no information regarding the psychometric properties or the factor analysis is reported in the literature. In addition, the high correlation between the two factors raises serious concerns about the correspondence to the two-factor model and the ability of the CPS to differentiate Factor 1 and 2.

Lynam (1997) tested the CPS with a sample of 430 male children from the Pittsburgh Youth Study that were categorized as (a) stable nondelinquent; (b) other delinquent, and (c) stable serious delinquent. Measures of delinquency included the Self-Report of Antisocial Behavior (SRA, a self-report of antisocial behavior) and the Self-Report of Deliquency (SRD, a self-report of delinquency). Lynam found modest correlations between CPS items and rates of delinquency, such as serious theft (r = .26), commission of violent acts (r = .32), and general delinquency (r = .32). CPS scores were also found to correlate with many measures of impulsivity including: self-reported (.25), teacher-rated impulsivity (.26), and behavioral impulsivity (.32). In comparison to their nonpsychopathic counterparts, psychopathic children were more prone to externalizing disorders and less prone to internalizing disorders. Using delinquency at age 10, SES, IQ, and impulsivity, the CPS total score was found to add incremental validity in the prediction of delinquency at ages 12 and 13 in a stepwise hierarchical regression.

Lynam concluded that childhood psychopathy, as measured by the CPS, corresponds to "nomological network" of adult psychopathy as evidenced by the CPS data supporting the two-factor model and finding similar correlates among child psychopaths as adult psychopaths. Children with high CPS scores had higher rates of

severe delinquent behavior which was stable across a three-year period. Similar to adults, psychopathic children (i.e., with high CPS scores) exhibited higher levels of impulsivity, and lower rates of internalizing disorders.

Psychopathy Screening Device. The Psychopathy Screening Device (PSD; Frick & Hare, in press) was developed to test the two-factor model of psychopathy. Frick, O'Brien, Wootton and McBurnett (1994b) hypothesized that (a) both psychopathic traits and antisocial behaviors could be isolated through factor-analytic procedures, and (b) children who were high on both psychopathic traits and antisocial behavior would form a unique subgroup. With a sample of 92 clinic-referred children between the ages of 6 and 13 years old, the researchers found a two-factor solution for the PSD that appears similar to the adult two-factor model. Each factor was subsequently transformed into a corresponding scale that is described in subsequent paragraphs.

The first scale, corresponding to Factor 2, comprised 10 items and labeled the Impulsive-Conduct Problems Scale (I/CP). The I/CP scale had moderate to moderately high correlations with the CBCL Delinquency (.58) and Aggression (.67) subscales. As measured by the DISC-2.3, the I/CP scale demonstrated similar correlations to the number of CD/ODD symptoms combined (.68) and CD symptoms (.53). These results led the researchers to conclude that the I/CP scale was measuring a similar construct to DSM-III-R externalizing disorder symptoms.

The second scale, corresponding to Factor 1, was comprised of 6 items and labeled the Callous/Unemotional (CU) Scale. Low to moderate correlations were found between the CU scale and the CBCL Aggression (.36) and Delinquency (.45) scales. The

CU scale produced lower correlations with CD/ODD symptoms combined (.40) and CD symptoms alone (.30). Frick et al. used the CU scale in hierarchical regression and logistical regression to test the individual predictive power of the scale in combination with CD and ODD symptoms on several criterion variables: sensation seeking, anxiety, and family arrest history. They found that the CU scale contributed independently to the prediction of sensation seeking. A significant interaction between CU scales and DSM-III-R conduct problems predicted paternal arrests. In summary, Frick et al., concluded the CU and I/CP scales have different associations with several important criteria including: antisocial behavior, sensation seeking, and family antisocial behavior.

Christian et al. (1997) specifically addressed the subtyping hypothesis proposed by Frick et al. that children high on both dimensions (i.e., psychopathic traits and antisocial behaviors) would form a unique subgroup. In a sample of 120 children ranging from 6 to 13 years old, psychopathy was measured via the PSD (Frick & Hare, in press). ODD and CD symptoms were assessed using DISC-2.3 parent and teacher rating forms All scales and symptom totals were standardized and entered into a cluster analysis. Four groups were identified (accounting for 62.2% of the variance) and labeled: (a) clinic control, (b) callous/unemotional, (c) impulsive conduct, and (d) psychopathic conduct.

The psychopathic conduct cluster showed the greatest numbers of oppositional, aggressive, and covert property-destructive symptoms. Children in the psychopathic conduct cluster also had significant histories of police contacts and parental histories of APD that were different from the other three clusters. The conclusion reached by Christian et al. is that children in the psychopathic conduct cluster exhibited a higher

frequency and variety of conduct problems than children with conduct problems without C/U traits (namely, the impulsive conduct problem cluster). Caution is warranted in interpreting these results that are largely descriptive in nature. The cluster has not been tested independently with external measures.

Psychopathy Checklist: Youth Version**.** The PCL:YV (Forth, Kosson, & Hare, 1994) measures behavioral and personality dimensions of psychopathy from a combination of interview and file information. The PCL:YV parallels the PCL-R in item composition and was designed to better account for adolescent life experiences with an increased focus on peer, family, and school adjustment (Forth & Burke, 1998). Similar to the PCL-R, all items are scored on a three point-ordinal scale (0 = item does not apply; 1 = item applies but inconsistencies across interview and file information may be present; and 2 = item applies). The PCL:YV items are divided into Factor 1 and Factor 2 which can be summed for a total score. Specific cut scores have not been developed for the PCL:YV. Utilizing a cut score $\geq$ 30, Forth and Burke (1998) reported the following base rates of psychopathy averaged across multiple studies: 28.3% for incarcerated settings, 12.0% for probation settings, and 3.5% for community settings.

Forth and Burke (1998) reported information regarding the psychometric properties of the PCL:YV. The PCL:YV demonstrates adequate levels of internal consistency with alphas across three settings (incarcerated, probation, and community) averaging .83. Average inter-item correlations were .22, indicating that the PCL:YV is a relatively homogenous scale. Inter-rater reliability across the three settings was .93 indicating high levels of agreement for PCL:YV total scores. No reliability estimates

were given for Factor 1 and Factor 2. In addition, no information regarding test-retest reliability was reported.

The validity of the PCL:YV has been investigated by examining the relationship between PCL:YV factor and total scores and conduct disorder symptoms. Significant correlations were found for both frequency of overall CD symptoms (mean r = .46) and frequency of aggressive CD symptoms (mean r = .37) with total score (Forth & Burke, 1998). Sullivan (1996) has shown significant correlations (rs ranging from .23 to .34) between the PCL:YV total scores and indices of externalizing problems (Psychopathic Deviate Scale, Conduct Problems Content Scale, Anger Content Scale) on the MMPI-A (Butcher et al., 1992).

Summary. In summary, studies utilizing first-generation measures of psychopathy examined the applicability of the measures across several samples including incarcerated and psychiatric adolescent groups. Finding similar patterns of criterion and predictive validity, these studies generally confirmed the applicability of the adult two-factor model (Brandt et al. 1997; Forth et al., 1990). Research with the second-generation measures has provided further support for the two-factor model and developed measures validated specifically to assess the construct in children (Frick et al, 1994; Lahey 1997).

The conclusions by the researchers have increased the attention on adolescent psychopathy as a subtype of childhood antisocial behavior that may improve classification and predictive validity. However, several caveats regarding the ongoing validation of these measures warrant further consideration. First, little is known about

the underlying factor structure of the PCL:YV. Until these data are available, we cannot conclude that item adaptation and developmentally-oriented scoring criteria support the traditional two-factor model. Second, although the PSD validation studies offer support for the two-factor model, the current factor structure was derived on combined parent and teacher data. No information is reported on the factor structure of the youth self-report form. In addition, the current factor structure is not a direct downward extension of the adult model. The I/CP factor accounted for the most variance in the factor solution, de-emphasizing personality components traditionally viewed as Factor 1.

A final, and perhaps most important, limitation regarding all of the measures is the relative absence of long-term test-retest reliability data. To date, there have been no published longitudinal studies investigating the stability of psychopathy, as assessed by either first or second generation psychopathy measures. The measures reviewed, rest on the untested assumption that psychopathy is expressed in the same way, regardless of the age of the individual. Without data regarding reliability and longitudinal outcomes, it is an open empirical question whether the two-factor model reflects stable personality and behavioral traits or taps into normative adolescent characteristics that may fluctuate with increasing age.

Antecedents and Etiological Theories of Conduct Problems and Adolescent Psychopathy

Research elucidating the antecedents of conduct problems has focused on biological, environmental, and personality precursors. This section reviews data regarding risk factors and characteristics that have shown strong associations with the development and persistence of conduct problems in children and adolescents.

Genetically, intergenerational linkages of criminal behavior have been established (Edelbrock, Rende, Plomin, & Thompson, 1995; Kaplan & Liu, 1999). However, environmental factors have also received considerable empirical attention (Farrington & Loeber, 1999; Gorman-Smith, Tolan, & Henry, 1999; Lahey, Miller, Gordon, & Riley, 1999; McGee & Williams, 1999). An exhaustive review of this research is beyond the scope of the current study. However, the three domains (biological, environmental, and personality) are reviewed, highlighting key findings regarding risk factors for severe conduct problems. Finally, this section outlines etiological theories of severe conduct problems that incorporate the construct of psychopathy as a causal factor.

Biological Antecedents

Biological factors can be conceptualized in two domains: cognitive and neuropsychological (Simonoff, Pickles, Meyer, Silberg, & Maes, 1998). Regarding the former, Hogan (1999) provided a review of cognitive functioning and conduct problems. Her general conclusion is that children with conduct problems frequently have cognitive and social-cognitive difficulties that contribute to ongoing social maladjustment. Two studies provide support for a causal link between low IQ and CD. Utilizing path analysis, Schonfeld, Shaffer, O'Connor, and Portnoy (1988) tested whether Full Scale IQ scores made a significant independent contribution to the prediction of CD. Results found that low IQ contributed to CD at age 17, independent of early aggression, parental psychopathology, and environmental disadvantage. Goodman, Simonoff, and Stevens (1995) utilized a sample of 13-year old twins to examine the IQ-CD link. Individual IQ,

twin IQ, parent IQ, and SES were entered as predictors of CD; the child's IQ being the strongest predictor of CD.

Verbal IQ and language deficits have been postulated as contributing to the IQ/CD link (Hindshaw, 1992; Moffit, 1993); however, evidence for this link is mixed. In an inpatient sample, Hodges and Plow (1990) found no differences between IQ subscales across CD and non-CD groups. However, the CD group had significant VIQ (M = 92.6) < PIQ (M = 101.8) discrepancies No differences were reported between VIQ and PIQ across CD and non-CD groups by Beitchman et al. (1982). Frick et al. (1994) reported a negative relationship between ODD/CD symptoms and PIQ but not VIQ. Hogan (1999) concluded that research into cognitive deficits must take into account the comorbidity between CD and ADHD, as well as age of CD onset, in order to draw conclusions about the role of cognitive deficits in predicting conduct problems.

Psychobiological factors have focused on neurotransmitter systems (Pliska, 1999), neuropsychological deficits, and altered psychophysiological responses (Lahey, Hart, Pliszka, Applegate, & McBurnett, 1993). Pliska (1999) reviewed the research implicating seretonin (deficient release or defective receptors) and the dysregulation of the dopamine system which mediates reward-driven behavior. Children who display aggression have been found to demonstrate low psychophysiological arousal and low autonomic reactivity (McBurnett & Lahey, 1994; Quay, 1993). For example, research has found lower skin-conductance levels, a frequently used measure of sympathetic-nervous system activity, during administration of neuropsychological tests (McBurnett et al., 1991) in youths with severe, persistent CD when compared to controls. Pliska (1999)

stated that further research is needed regarding the role of seretonin and dopamine on regulation of motor control, response to reward, and physiological changes. He recommended that at-risk children for antisocial behavior and controls be assessed for seretonin and dopamine dysregulation and followed longitudinally in order to further study the potential interaction between biological and environmental factors.

Environmental Antecedents. Connections between environmental factors and childhood antisocial behaviors have been demonstrated (see Farrington, 1986b). For example, variables indicative of family disruption often predate juvenile violence (Frick et al. 1993; Patterson, Reid, & Dishion, 1992). In their review of environmental risk factors, McGee and Williams (1999) examined three environmental risk domains: (a) socioeconomic disadvantage, (b) family climate, and (c) parent-child interactions.

Socioeconomic disadvantage included variables such as low SES, young parents, low maternal education, and single-parent families. Odds ratios indicate that children in a single parent family were three times (odds ratio = 3.2) more likely than two-parent families to eventually receive a CD diagnosis (Farrington & Loeber, 1999; Gorman-Smith, Tolan, & Henry, 1999). Family climate variables included parental separation, poor social support, and maternal depression. Of these variables, young children with depressed mothers were almost three times (odds ratio = 2.9) as likely to receive a CD diagnosis than young children without depressed mothers (Kolbo, Blakely, & Engleman, 1996; McGee, Feehan, & Williams, 1996). Parent-child interaction variables included maternal rejection, lax-inconsistent discipline, and authoritarian parenting style. Maternal rejection and inconsistent discipline showed the strongest effects on increasing

the risk for both CD and ODD diagnoses with odds ratios of 2.2 and 3.3 respectively (McGee et al., 1996).

Lahey et al. (1999) provided a thorough review of environmental factors that were identified in epidemiological studies of the three disruptive behavior disorders (ADHD, ODD, and CD). Results are consistent with the McGee and Williams (1999) review that single-parent households have higher rates of disruptive behavior disorders than two-parent households (e.g., Loeber, Farrington, Stouthamer-Loeber, & van Kammen, 1998). In addition, changes in the primary parenting figure have also shown increased risk for later behavior disorders (e.g., Ferguson & Lynskey, 1993). Another significant area of environmental risk is parental psychopathology and antisocial behavior in the forms of criminal history (e.g, Offord, Boyle, & Racine, 1991) and substance abuse (e.g., Velez, Johnson, & Cohen, 1989).

Personality Antecedents

Temperament is generally viewed as a biologically based construct (Bates & Wachs, 1994; Sanson & Prior, 1999). However, styles and domains of temperament have been found to show strong associations with adult personality factors such as positive affect, approach-avoidance, emotional reactvitiy, and self-regulation (Sanson & Rothbart, 1995). Temperament is hypothesized to influence parental interactions (Izard, Haynes, Chisolm, & Bank, 1991) with negative attachment patterns being linked to subsequent problems with aggression (Lyons-Ruth, Alpern, & Repacholi, 1993).

Data from the Australian Temperament Project (Sanson, Prior, & Oberklaid, 1985) have provided longitudinal information on temperament styles and later

aggression. At early ages (3-6) inflexible and persistent temperament characteristics were associated with aggressive behaviors at follow-up evaluation in adolescence. Focusing on a subsample of 93 aggressive children, analysis revealed that their early temperament patterns were similar. They also showed higher levels of behavior problems in multiple environments including family, school, and peer domains (Prior, Sanson, Smart, & Oberklaid, in press).

In summary, research that examined precursors of conduct problems has focused on a myriad of factors which show strong associations with different types of longitudinal behavioral outcomes. Although the three domains were discussed as mutually exclusive categories, the majority of research discusses the additive effects of multiple risk factors (Kaplan & Liu, 1999). Transactional models (Phelps & McClintock, 1994) and multivariate modeling allow for a better understanding of the relationships among the three domains and their causal roles in conduct problems and aggression (Simonoff et al, 1998; Slutske et al., 1997).

Multiple Antecedents of Conduct Problems and Psychopathy

Previous sections have outlined the downward extension of the adult psychopathy literature to juveniles. This extension has focused on assessment and outcome variables that have been consistently found in the adult literature (Forth & Burke, 1998; Hemphill et al. 1998, Salekin et al. 1996). This section addresses developmental pathways to serious conduct problems and psychopathy. Both models have advanced our current conceptualization of childhood conduct problems and the relationship to adolescent psychopathy. The ongoing investigation of this construct in adolescents will likely have

far-reaching ramifications for advancing etiological theories of antisocial behavior, treatment, and management strategies.

Lynam's Model. Lynam (1996) argued that children exhibiting symptoms of hyperactivity-impulsivity-attention problems (HIA) and conduct problems (CP) are at greatest risk for chronic offending. Lynam contended that children who have additive combinations of HIA and CP are "fledgling psychopaths" because their combination of symptoms leads to more frequent and severe adult antisocial behavior. In support of this argument, Lynam marshaled research indicating a high comorbidity (ranging 30-50%) between HIA and CP in epidemiological and clinical studies. Lynam also cited longitudinal evidence that children diagnosed as HIA show high rates of antisocial and illegal behavior in adolescence and are more likely to be diagnosed with APD in adulthood. Longitudinal data (Loeber, Brinthaupt, & Green, 1990) from four groups (HIA-CP, HIA-only, CP-only, and a control group) lent support to the additive effect between HIA and CP. Compared to other groups, Loeber et al. (1990) found the HIA-CP group had more police contacts, higher percentage of multiple offenders, higher rates of offending, and higher levels of self-reported aggression. Moffit (1990) found that boys in the HIA-CP group had significantly lower scores on IQ, SES, impulsivity, reading achievement, verbal ability and verbal memory.

Lynam further reviewed neuropsychological studies suggesting that the subgroup of HIA-CP children show similar deficits as adult psychopaths. These similarities included poor passive-avoidance learning, cortical underarousal, deficits in executive functioning, and poor response modulation. Without prospective data, Lynam

acknowledged that the proposed link is implicit, indirect, and extrapolated from cross-sectional studies of children and adults.

From this review, the question remains what role hyperactivity and/or impulsivity plays in the development and persistence of antisocial behavior? Lynam (1996) outlined three etiological hypotheses. First, Lynam argued that HIA is a risk factor leading to consequences and problems that escalate the probability of antisocial behavior. Evidence in support of the risk factor hypothesis included academic failure, poor frustration tolerance, negative parent child interactions, and peer rejection associated with HIA (Henker & Whalen, 1999; Whalen & Henker, 1999a, 1999b). Second, Lynam proposed an alternative model where HIA leads to ODD and escalates early-onset of CD placing the child in the life-course persistent trajectory (Moffit, 1993). Here Lynam draws on the temperament literature (see Lyons-Ruth, Alpern, & Repacholi, 1993) and argues that children with HIA evoke strained parent-child interactions. The negative interactions increase the likelihood of ODD and subsequent development of CD (Frick, 1998a; Lahey & Loeber, 1994). An interesting proposition by Lynam is that early treatment of HIA may prevent the hierarchical developmental progression. Third, Lynam argued for the HIA-CP subtyping hypothesis drawing on the work of Newman and Wallace (1993) in stating that this subgroup evidences a "psychopathic deficit" of the failure to inhibit a dominant response or goal directed behavior. More specifically, Lynam developed the construct of "psychopathic constraint" to explain psychopathy. Psychopathic constraint is theorized to limit the ability to incorporate environmental feedback and modulate responses while in the pursuit of reward.

For the three proposed etiological hypotheses, Lynam (1996) has attempted to synthesize the research on longitudinal outcomes, the comorbidity between ADHD and CD, and environmental factors. Lynam argues that "psychopathic constraint" is first exhibited as HIA in early childhood, ODD and CD in middle childhood, and psychopathy in adulthood. The progression is the maturation of the same underlying pathology. The proposed information-processing deficit is a sufficient condition for the development of HIA and can place the child along this developmental trajectory. Prospective studies and longitudinal research establishing the information-processing deficit in children is lacking. In addition, the role of environmental factors must be addressed in order to establish a more complete theoretical model.

Frick's Model. Frick (1998a) has proposed a preliminary developmental framework for conduct problems that incorporates two distinct developmental pathways: Psychopathic Conduct Problems and Alternative Conduct Problems. A key assumption of the model is that conduct problems are an etiologically heterogeneous outcome that may involve distinct causal pathways with varying interactions between causal factors. Based upon the empirical support for the C/U factor in children, Frick argued that the development of C/U traits is specific to the Psychopathic Conduct Problems pathway. The Psychopathic Conduct Problems pathway incorporates both low behavioral inhibition and callous/unemotional traits as developmental precursors to conduct problems. CU traits are considered to develop partly as a function of a unique temperamental style and low behavioral inhibition. Once CU traits develop, it is posited

that a child is more likely to act against parental and societal norms, and violate the rights of others.

Frick (1998a) proposed that poor planning, lack of foresight, inability to delay gratification, and resist temptation lead to a specific temperament. This specific temperament is marked by deficits in control of purposeful behavior and often found in ADHD children. These deficits and low behavioral inhibition provide the developmental pathway that leads to the development of CU traits according to Frick. Low behavioral inhibition has been hypothesized to involve two motivational systems: the behavioral activation and behavioral inhibition systems (Gray, 1982). The behavioral activation system controls appetitive drives and activates cues to reward and punishment. The behavioral inhibition system specifically activates cues to punishment and non-reward. Research has had difficulty separating patterns of disinhibited behavior into either system (e.g., Oosterlaan & Sargeant, 1996; Sergeant, Oosterlaan, & van der Meere, 1999). Frick proposed that the two-factor model provides a theoretical basis for studying the differential effects of the BIS and BAS. Frick argues that the behavioral activation system is linked to impulsivity and Factor 2 characteristics. As hypothesized, low levels of behavioral inhibition and CU traits are consistent with Factor 1.

The second developmental pathway, Alternative Conduct Problems, suggests that poor parental socialization and low IQ may be independent causal factors leading to conduct problems in children. Frick proposed that dysfunctional parenting practices may play a role in the development of conduct problems primarily in children without CU traits. Empirical support for this proposition was provided by Wootton, Frick, Shelton,

and Silverthorn (1997). In this study, indices of parental socialization (i.e., lack of parental involvement, failure to use positive control strategies, poor parental monitoring and supervision, inconsistent discipline, and harsh physical discipline) were measured across four time periods. The researchers found a significant interaction between a composite index of dysfunctional parenting practices and CU traits for predicting conduct problems. In contrast, parenting was unrelated to conduct problems in children high on CU traits. Children high on CU traits showed high rates of conduct problems regardless of the quality of parenting.

Frick's prediction that CU traits serve a mediational role on behavioral inhibition makes this model distinct from other models that posit a direct causal relationship between behavioral inhibition and antisocial behavior and/or psychopathy. Frick's model is consistent with the hypotheses developed by Lynam (1996, 1997) in that neuropsychological deficits play an important etiological role. However, Frick's model is more complete in that the second pathway accounts for environmental factors that are not addressed by Lynam.

Overview of the Proposed Study

Adequate levels of construct validity must be established before adolescent psychopathy can be utilized in clinical and forensic decision-making. Construct validation involves multiple concurrent evaluations of the latent construct and observable measurement in the absence of a true criterion (Cronbach & Meehl, 1955). To date, there is a noticeable lack of empirical research investigating the construct validity of adolescent psychopathy. By examining the convergent validity of multiple measures, the construct

validity of the adolescent two-factor model can be tested. In addition, the proposed study hopes to provide further information on the relationship between psychopathy and the traditional classification of childhood antisocial behavior found in the DSM-IV.

Empirical evidence regarding construct validity cannot support clinical utility without concomitant evidence of predictive validity. Drawing on important correlates from the adult literature, the association between psychopathy and external criteria warrants investigation. Examples of external criteria include: institutional aggression, response to management strategies, and re-arrest. The predictive utility of both psychopathy and its factors must be examined to investigate its utility in assessing treatment/supervision response and re-arrest.

Past psychopathy research has also been criticized for its overreliance on homogenous groups (e.g., only incarcerated offenders). The inclusions of two samples of adolescent offenders, involved at different stages of the juvenile justice system is likely to further our understanding of both construct and predictive validity by promoting greater generalizability of research findings. By examining demographic characteristics and offending behavior across both groups, comparisons can be made between the two samples which relate to important theoretical and classification strategies of conduct disorders (type of offense, age of onset of conduct problems).

Hypotheses

The primary goal of the proposed study is to investigate the construct validity of psychopathy in adolescents. Construct validity will be examined utilizing a multi-trait-

multimethod matrix (MTMM; see Sullivan & Feldman, 1979). To assist readers, Table 1 provides MTMM terminology.

Table 1

Multitrait-Multimethod Matrix Terminology

Term	Definition
Monotrait-monomethod	Internal consistency as measured by alpha coefficients
Monotrait-heteromethod	The relative strength of convergent validity coefficients by examining a single trait across multiple measures
Heterotrait-monomethod	Discriminant validity examines the relationship between different traits (interscale correlations) within the same measure
Heterotrait-heteromethod	Discriminant validity examines the relationship between different traits across multiple measures
Comparison Violation	Percentage of cases when discriminant validity (heterotrait-monomethod and heterotrait-heteromethod) correlations exceed convergent validity (monotrait-heteromethod) correlations

Note. Terms and definitions adopted from Campbell and Fiske (1959) and Bagozzi and Yi (1991).

The criteria for examining construct validity via the MTMM were established by Campbell and Fiske (1959). In short, construct validity is examined by comparisons of convergent and discriminant validities. Convergent validity is the correlations for similar traits across methods (e.g., Factor 1 correlations across assessment methods).

Discriminant validity is composed of correlations (a) across different constructs within the same measure, and (b) across different measures (e.g., Factor 1 correlations to measures of internalizing disorders across assessment methods).

Hypotheses #1 through #3 relate to construct validity of adolescent psychopathy. Hypotheses #4 and #5 relate to the association between psychopathy, ODD/CD symptomatology, and the predictive validity of adolescent psychopathy. Finally, Hypothesis #6 examines the clinical utility of self-report screens for adolescent psychopathy.

Hypothesis #1. Monotrait-heteromethod correlations for psychopathy will exceed heterotrait-monomethod and heterotrait-heteromethod correlations.

Hypothesis #2. In light of the literature on externalizing and internalizing disorders, it is hypothesized that two dimensions of psychopathy and one dimension of internalizing disorders are present in this delinquent population.

Hypothesis #3. Consistent with Frick's model of adolescent psychopathy, ADHD symptomatology is hypothesized to be positively correlated with the I/CP scale of the PSD and Factor 2 of the PCL:YV.

Hypothesis #4. It is hypothesized that psychopathic adolescents will have an earlier onset and prior emergence of ODD/CD symptoms when compared to non-psychopathic adolescents.

Hypothesis #5. Psychopaths are hypothesized to show poorer institutional adjustment than nonpsychopaths as measured by (a) frequency of verbal and physical aggression and (b) frequency of institutional infractions.

Hypothesis #6. The PSD and SRP-II will serve as effective screens for psychopathy as measured by the PCL:YV.

CHAPTER II

METHOD

Design

The research protocol received full board review and was approved by the Institutional Review Board at the University of North Texas. The research design utilized a multitrait-multimethod matrix (MTMM) with three convergent measures of psychopathy and two discriminant measures. Campbell and Fiske (1959) and Bagozzi and Yi (1991) established standards to investigate construct validity and the quality of the assessment instruments. Regarding convergent validity, Campbell and Fiske stated that convergent validity coefficients should be significantly different from zero and sufficiently large (Sullivan & Feldman, 1979). Bagozzi and Yi (1991) outlined benchmarks for assessing discriminant validity by calculating comparison violations (refer to Table 1 for MTMM terminology). High discriminant validity has < 5% comparison violations; moderate has 6 – 33% comparison violations; and low has > 33% comparison violations.

Participants

This research project was conducted in cooperation with the Denton County Juvenile Probation Department. Two programs served as research settings: (a) Short-Term Detention (Pre-Adjudication), and (b) the Post-Adjudication Treatment Facility (Post-Adjudication). The Short-Term Detention Facility houses adolescents between the

ages of 11-17 for a minimum 14-day short-term detention for a variety of offenses ranging from probation violations to felonies. Adolescents are placed in the short-term facility following arrest by a law enforcement officer or through parental affidavit. Youth are held in the facility prior to juvenile court detention hearings and/or disposition hearings. Adolescents can remain in the short-term facility following a disposition hearing if the juvenile court determines an out of home placement is warranted. While in the short-term detention facility, adolescents participate in school, recreational activities, physical training, and any intervention deemed appropriate by a juvenile probation officer (i.e., family meetings, random urinalysis, and psychological assessment).

The Post-Adjudication Treatment Facility houses adolescents who have been court ordered into a secure placement outside the home and are considered one step below long-term detainment. Guidelines for placement in the program include the commission of a felony offense, repeated misdemeanor offenses, or a persistent pattern of reoffending despite other intervention. The Post-Adjudication Treatment Facility houses male adolescents between the ages of 12 – 17 for an indeterminate length of time that is dependent on progression through the structured treatment program. The treatment program includes attendance in school, physical training, group therapy, substance abuse counseling, weekly meetings with a juvenile case manager, and individual therapy. All adolescents housed in the facility are monitored through a weekly point system. The number of points attained determines the youth's level (i.e., Freshman, Sophomore, Junior, and Senior) with each level having assigned responsibilities and rewards.

One-hundred and ten male adolescents were approached regarding participation in the research study. All 110 adolescents agreed to participate. Three participants were excluded from the study due to a reading level below 3rd grade while two were excluded due to insufficient attention to the measures (4 participants were excluded from the Pre-Adjudication sample and 1 participant was excluded from the Post-Adjudication sample). Therefore, analyzable data were obtained from 105 male adolescents.

Measures

All participants completed a standardized assessment battery comprised of the following measures: (a) Psychopathy Checklist: Youth Version (PCL:YV; Forth, Kosson, & Hare, 1994), (b) Psychopathy Screening Device (PSD; Frick & Hare, in press), (c) Survey of Attitudes and Life Experiences (SALE; Rogers & Sewell, 1994), and (d) the Self-Report of Psychopathy (SRP-II; Hare, 1991), and (e) the Adolescent Symptom Inventory – Four (ASI-4; Gadow & Sprafkin, 1995). In addition, all participants were administered a semi-structured interview, namely the disruptive, mood, and anxiety disorders modules of the Diagnostic Interview Schedule for Children - 2.3 Edition (DISC-2.3; Schaffer, Fisher, Piacentini, Schwab-Stone, & Wicks, 1991). All self-report measures were administered in a counterbalanced design to minimize ordering effects.

Psychopathy Checklist: Youth Version

The Psychopathy Checklist: Youth Version (PCL:YV; Forth, Kosson, & Hare, 1994) is a 20-item interview that measures behavioral and personality dimensions of psychopathy from a combination of interview and file information. All items are scored

on a three point-ordinal scale (0 = item does not apply; 1 = item applies but inconsistencies across interview and file information may be present; and 2 = item applies). The PCL:YV items are divided into Factor 1 and Factor 2 which can be summed for a total score.

The PCL:YV demonstrates adequate levels of internal consistency (average alpha = .83) and interrater reliability (average r = .93) across three settings (Forth & Burke, 1998). No reliability estimates were given for Factor 1 and Factor 2. Regarding, validity, the PCL:YV total score correlates with frequency of CD symptoms (mean r = .46) and frequency of aggressive CD symptoms (mean r = .37; Forth & Burke, 1998).

Specific cut scores have not been developed for the PCL:YV. Salekin et al. (1996) noted that selection of appropriate cut scores for the PCL/PCL-R have varied across studies when the PCL is utilized to predict dangerousness and recidivism in adult populations. Based upon the cut scores utilized by Hare and McPherson (1980), the following categories were calculated for the current sample: 7 psychopaths (6.7%), 9 mixed psychopaths (8.6%), and 85 nonpsychopaths (84.8%). It should be noted that cut scores utilized here produced a base rate of psychopathy similar to average base rates reported by Forth and Burke (1998) for probation settings (12.0%) rather than incarcerated settings (28.3%).

Psychopathy Screening Device

The Psychopathy Screening Device (PSD; Frick & Hare, in press) is a 20-item, two-factor self-report scale that was rationally developed from the PCL-R with parent, teacher, and self-report versions. The PSD has a Flesch-Kincaid grade level of 5.99

indicating that the reading level is appropriate for use in the current study. PSD items are scored on a three-point ordinal scale consistent with the PCL:YV. Similar to the PCL-R factors, the two PSD factors are significantly correlated (r = .50; Frick, O'Brien, Wootton, & McBurnett, 1994). Internal consistency is higher for the I/CP scale (alpha = .82) than the CU scale (alpha = .73). Regarding the validity of the PSD, Frick et al. (1994) found that the CU scale was negatively related to measures of anxiety and positively related to measures of sensation seeking and conduct problems. The I/CP scale has shown significant correlations with frequency of both ODD and CD symptoms (Frick, 1998a).

Self-Report Psychopathy II

The SRP-II (Hare, 1991) is a 60-item rating scale with a Flesch-Kincaid grade level of 3.70. Each item is rated on a 7-point Likert type scale from Disagree Strongly to Agree Strongly. Factor 1, Factor 2, and total score estimates are obtained. Although specific item changes from the original to the revised version are unavailable, Lilienfeld and Andrews (1996) noted that revisions were undertaken to provide superior coverage of Factor 1 traits. The reliability of the SRP-II has not been reported in the literature. Hemphill (personal communication, August 4, 1999) provided information concerning the criterion validity of the SRP-II with the PCL-R. Criterion validity coefficients were as follows: Factor 1 = .48, Factor 2 = .35, and Total Score = .54.

The SRP-II has not been utilized in adolescent populations. Modifications to 3 of 60 SRP-II questions (5.0%) were made because these items did not reflect adolescent life experiences. These changes reflect original modifications of the PCL-R noted by Forth et

al. (1990) to promote the applicability of the measures to adolescents. Items 16, 20, and 28, were changed from the past tense to the present tense to reflect current experiences.

Survey of Attitudes and Life Experiences

The Survey of Attitudes and Life Experiences (SALE) is an 80-item, self-report rating scale that purports to measure personality and behavior dimensions associated with adolescent conduct problems and psychopathy (Rogers & Sewell, 1994). SALE items are rated on a 4-point Likert type scale from Disagree Completely to Agree Completely. The SALE has a Flesch-Kincaid reading level of grade 4. Reliability and validity data are not readily available due to the current validation and refinement of the instrument. Currently, four scales are measured on the SALE: (a) Unstable Self Image, Unstable Relationships, and Irresponsibility, (b) Manipulation and Lack of Guilt, (c) Aggressive Behavior, and (d) Nonviolent Deliquency. Three of the four scales have shown moderate levels of internal consistency (alphas ranging from .51 to .67). A subset of SALE items have been shown to discriminate high and low psychopathy scores in incarcerated adult females.

Diagnostic Interview Schedule for Children Version 2.3

The Diagnostic Interview Schedule for Children Version 2.3 (Shaffer et al., 1991) is a comprehensive, highly structured diagnostic instrument developed for use in epidemiological studies. The DISC 2.3 is organized into six modules with parallel versions for children and parents.

In examining the reliability of the DISC-2.3, Rogers (1995) concluded that the interrater reliability of the DISC diagnoses is well established. Reliabilities of the child

version are generally satisfactory (kappas ranging from .16 to .87) for diagnoses and intraclass correlation coefficients ranging from .44 to.87 for symptoms.

Table 2

DISC-2.3 Test-Retest Reliability and Internal Consistency Estimates for Diagnoses Used in the Current Study

	Test-Retest Estimates		
Diagnosis	Alpha	ICC	Kappa
ADHD	.83	----	.72
ODD	.67	.16	.44
CD	.59	.55	.60
MDD	.85	.77	.68
SA	.71	.72	.66

Note. Alphas correspond to measure of internal consistency. ICC is an estimate of symptom agreement with a 1 to 3 week interval. Kappa is an estimate of test-retest diagnostic agreement with a 1 to 3 week interval. ADHD = Attention Deficit Hyperactivity Disorder, ODD = Oppositional Defiant Disorder, CD = Conduct Disorder, SA = Separation Anxiety, MDD = Major Depression Disorder. This table was modified from Schwab-Stone et al. (1993).

As reported in Table 2, test-retest reliability estimates are satisfactory for ADHD, CD, MDD, and SA diagnoses and low for ODD. An examination of the alphas indicates low consistency for the CD diagnoses. However, Kamphaus and Frick (1996) suggest that this result is an artifact of the polythetic nature of the diagnoses and variable base rates of individual symptoms.

Schwab-Stone et al. (1996) reported criterion validity for the DISC-2.3 diagnoses compared with standard clinical interviews. When comparing child informant interviews to standard clinical interviews, Table 3 indicates that the validity of the DISC –2.3

averages .36 for diagnoses based purely on DSM-III-R criteria, and .32 for diagnoses based on DSM-III-R criteria and impairment as measured by a Child Global Assessment Scale $\leq$ 70. Validity coefficients are moderately high for the diagnosis of CD when both basic criteria (r = .57) and criteria plus impairment (r = .52) are measured. Results are less promising for the ODD diagnosis: (r = .33) for basis criteria and (r = .26) for criteria plus impairment.

Adolescent Symptom Inventory – 4

The Adolescent Symptom Inventory (ASI-4; Gadow & Sprafkin, 1995) is a 120-item self-report rating scale of all childhood disorders symptoms found in the DSM-IV. The ASI-4 format includes symptom description and a four-point rating scale of frequency from "never," to "very often." At the present time, norms and reliability data for the ASI-4 are not available. Information reported in the test manual suggests that the ASI-R is an acceptable screen with sensitivity rates ranging from .53 to 1.00 and specificity rates ranging from .70 to .82.

Procedure

Informed Consent

Informed consent for participation in the research project was obtained by intake staff in both the short-term and post-adjudication programs. The parental consent form (Appendix A) was included as part of the general admission forms which all parents reviewed as part of the intake procedure into the detention programs. Prior to the recruitment of participants, the primary investigator reviewed intake packets to guarantee that the parent or legal guardian had signed the consent form.

One-hundred and ten male adolescents were approached regarding participation in the research study. Prior to the administration of the research protocol, the purpose of the study was explained utilizing the Youth Assent Form (Appendix A). It was stressed that participation in the research study was voluntary and that all information would be kept confidential. All 110 adolescents agreed to participate.

Sampling

A consecutive sampling procedure was utilized in both the Short-Term and Post-Adjudication programs. Dates of admission were noted for all potential participants. Participants in the Short-Term sample were interviewed within three days of admission. Participants in the Post-Adjudication sample were interviewed within two weeks of admission. If the time lapse between admission and interview exceeded three days (short-term) or 14 days (post-adjudication), the participant was not interviewed and excluded from participation in the study.

Screening Participants

Five participants were excluded from the study due to either a reading level below 4th grade as measured by the reading subtest of the Wide Range Achievement Test (WRAT-3; Wilkinson, 1993) or insufficient attention to the interview or self-report measures. Insufficient attention was evidenced by failure to endorse any items on the DISC-2.3 or a single response set on the self-report measures. Four participants were excluded from the Short-Term sample and one participant was excluded from the Post Adjudication sample. Therefore, analyzable data was obtained from 105 male adolescents.

General Procedures. All data collection was gathered in a classroom within the Post-Adjudication facility. The classoom was used for these reasons: (a) secure privacy, (b) minimize distractions, and (c) provide participants a writing surface with a comfortable table for completing self-report measures. The primary investigator was seated opposite the participant at a table in the classroom. The PCL:YV and DISC-2.3 are structured interviews conducted by the primary investigator. The primary investigator was also present for all self-report measures in order to answer questions and clarify instructions, if needed.

The administration of measures began with the specified DISC-2.3 modules; they were administered according to their sequencing in the DISC-2.3: anxiety disorders, mood disorders, disruptive behavior disorders. Administration of the DISC-2.3 modules required approximately 1 hour. Rationale for beginning with the DISC-2.3 was to gather background information and establish rapport with the participants. Next all self-report measures (i.e., SRP-II, PSD, SALE, ASI-4) were administered in a counterbalanced order to minimize ordering effects. By placing the self-report measures between the two interviews, the investigator avoided the close administration of repetitive questions (DISC-2.3 CD questions and PCL:YV questions relating to antisocial behavior) within a short time period. Administration of all self-report measures took approximately 30 to 45 minutes.

For a subset of participants, inter-rater reliability was calculated for the PCL:YV. The procedure for gathering inter-rater reliability was as follows. An additional rater gathered the interview information obtained by the principal investigator and scored the

PCL:YV independent from the principal investigator's scoring. The second rater was masked to the data collected from the DISC-2.3 and all self-report measures. Prior to beginning the PCL:YV, the second rater joined the principal investigator for the interview. Following the interview, each rater scored all individual PCL:YV items using information gathered during the interview and the detention file.

The final aspect of the data collection was the administration of the second interview, the PCL:YV. The rationale for administering the PCL:YV as the final measure was as follows: (a) responses to PCL:YV inquiries would not contaminate DISC-2.3 ratings of disruptive disorder criteria, and (b) self-report measures were not scored and the results were unavailable to the interviewer at the time of the PCL:YV interview. In addition, the PCL:YV requires the integration of clinical data in making component ratings. Therefore, the knowledge of DISC-2.3 responses enhances PCL:YV administration.

Specific Procedures - Assessment Followup

The primary investigator collaborated with the Post-Adjudication Facility staff to develop a tracking system for important treatment and supervision variables (see Appendix B). Files reviews for the Post-Adjudication sample were completed for the 3-month period following initial data collection. Each participant in the Post-Adjudication facility had a file containing demographic and legal information, weekly point sheets, and incident reports. Weekly point sheets were reviewed documenting the number of points earned during each week. Incident reports and computer records served as the sources of information regarding institutional aggression and treatment program infractions.

Operational definitions of all treatment and supervision variables are listed in Appendix B.

Two follow-up file reviews were completed with the Pre-Adjudication sample. The first file review was completed utilizing the institutional infraction criteria developed for the Post-Adjudication sample file review procedure documenting the frequency of institutional aggression and program infractions for the 10-day short-term detention period. The second file review procedure involved documenting the frequency of external validity criteria specific to the community supervision of participants following their release from detention (Appendix C). These criteria included: the number of weekly contacts with the Denton County Juvenile Probation Officer, type of contact (i.e., office, phone, and field visit), alcohol/drug testing, new juvenile court appearances, placement in detention, school suspensions or expulsions, and noncompliance with the terms of community supervision. This second file review was completed using the same time interval (3 months) as the Post-Adjudication sample. Across both samples, 3 external criteria listed in Appendix B could not be coded from computer records (escape threats, escape attempts, medication refusals). Other criteria had insufficient representation (i.e., less than 5 incidents): removal from school environment, suicide attempts, and self-harm.

CHAPTER III

RESULTS

Initial Data Analysis

Data Screening

All data were entered at the item level for the assessment measures. All item variables were screened for data entry errors by visual examination of frequency distributions for out-of-range values. Scales were created according to the standard scoring criteria for each measure. Following the calculation of scale scores, all computed variables were screened for computation errors by examining frequency distributions for out-of-range values.

Prior to conducting data analysis, the self-report measures were tested for order effects. All factor scores from the self-report measures served as dependent variables in a series of one-way ANOVAs (i.e., Factor 1 from the PCL:YV, I/CP scale from the PSD). The counterbalanced orders served as four levels of a single between-subjects factor in the ANOVAs. Results indicated nonsignificant results for all scales except for the Manipulation and Lack of Guilt factor from the SALE $F(3, 98) = 14.01$, $p = .02$. Post-hoc analysis indicated that Order #2 (PSD/SALE/YSR/SRP-II) had significantly lower mean scores ($M = 71.31$, $SD = 13.11$) than Order #4 (YSR/SRP-II/PSD/SALE) ($M = 80.23$, $SD = 10.08$). With this single exception, the results indicated that there are no significant factor score differences across the counterbalanced orders.

Reliability of the PCL:YV

Rating the PCL:YV requires integration of clinical data in making individual item ratings. However, there is a possibility that information gathered previous to the PCL:YV administration may have biased the ratings of individual PCL:YV items. Therefore, inter-rater agreement was calculated for a small group of cases (n = 11) by computing Pearson's product-moment correlations for Factor 1, Factor 2, and PCL:YV total scores. Results indicated that all correlations were above .95 reflecting very high level of agreement (Factor 1 r = .97, Factor 2 r = .98, and Total r = .99).

Sample Demographics

For the entire sample, participants ranged in age from 11 to 17 years (M = 15.28, SD = 1.15). Ethnic breakdown of the research sample was as follows: 66.5% European American (n = 69), 17.1% Hispanic American (n = 18), 13.3% African American (n = 14), and 3.8% Other (n = 4). Regarding criminal history, participants had an average of 4.44 juvenile court referrals (SD = 2.92) with 79.5% of the sample having at least one misdemeanor while 67.7% had at least one felony referral.

Table 3 reports basic demographic information broken down by Pre-Adjudication and Post-Adjudication samples. Although sample size varied substantially, a series of independent sample t-tests were performed to examine demographic differences. Results indicated nonsignificant mean differences for age $t(103) = 1.53$, $p = .13$, and reading level $t(103) = .62$, $p = .54$.

Ethnic differences across the samples were compared utilizing the chi-square statistic. Due to the low frequency of Asian Americans, this group was dropped from this comparison. The chi-square produced nonsignificant results, $\chi^2(2) = 4.51$, $p = .11$). An

examination of ethnicity as reported in Table 2 indicated comparable percentages of European Americans and Hispanic Americans. African Americans were less represented in the Post-Adjudication sample.

Table 3

Age, Race, Reading Level, and Offense Characteristics for Pre-Adjudication and Post-Adjudication Samples

Demographic	Pre-Adjudication n = 76	Post Adjudication n = 29	t/χ^2	p
Age	15.17 (1.19)	15.55 (.99)	1.53	.13
European American	50 (65.8%)	19 (65.5%)	4.51	.11
African American	13 (17.1%)	1 (3.4%)		
Hispanic American	12 (15.8%)	6 (20.7%)		
Asian American	1 (1.3%)	3 (10.3%)		
Reading Level	7.22 (2.18)	7.52 (2.15)	.62	.54
Felonies	.79 (.72)	.93 (.65)	.93	.36
Misdemeanors	2.71 (2.34)	4.21 (2.29)	2.94	.004
Status Offenses	.37 (.76)	1.07 (1.44)	3.23	.002

Note. Standard deviations for continuous variables are reported in parentheses. Percentages for categorical variables are reported in parentheses.

Significant differences were also found for average number of reported offenses $t(103) = 4.41$, $p < .001$. The Post-Adjudication sample averaged twice the number of reported offenses as the Pre-Adjudication sample. However, this result is expected as a felony or repetitive misdemeanor offenses are required for acceptance into the Post-Adjudication program. Table 3 indicates that the average number of felony offenses did

not differ across the two samples $t(103) = .93$, $p = .36$. Different results between the Pre-Adjudication and Post-Adjudication samples were obtained for misdemeanor and status offenses. The Post-Adjudication sample had significantly higher misdemeanors $t(103) = 2.94$, $p = .004$, and status offenses $t(103) = 3.23$, $p = .002$ than the Pre-Adjudication sample.

Results Addressing Hypothesis #1

Hypothesis #1 stating that monotrait-heteromethod correlations for psychopathy will exceed heterotrait-monomethod and heterotrait-heteromethod correlations was examined by computing a multrait-multimethod matrix. Within the MTMM matrix, Factor 1 and Factor 2 are considered as traits. The PCL:YV, PSD, SRP-II, and SALE are considered assessment methods. DISC-2.3 and ASI-4 symptom totals for depression and anxiety serve as discriminant validity traits (see Table 4).

Measures of internal consistency (alpha) fell well below acceptable levels for three of the nine psychopathy scales (.56 for PSD CU, .47 for SRP-II F1, and .51 for SALE Factor 3). Poor internal consistency limits the results of the MTMM because scales with low internal consistency are less likely to correlate with scale purporting to measure the same construct. Elimination of scales with low internal consistency was considered. However, even adopting a liberal alpha (.60) would result in the removal of three Factor 1 measures limiting the ability to test this trait. Results (see Table 5) indicate modest but significant levels of convergent validity for both Factor 1 (mean $r = .30$) and Factor 2 (mean $r = .32$). All convergent validity coefficients for Factor 1 and Factor 2 were significant except one pair. The correlation between SRP-II Factor 1 and SALE Manipulation/Lack of Guilt was nonsignificant.

Table 5

Summary of Construct Validity for Factor 1 and Factor 2

Psychopathy Factor	Convergent Validity	Discriminant Validity		
		D_1	D_2	D_3
Factor 1	.30	.45 (83.3%)	.26 (53.3%)	.18 (25.0%)
Factor 2	.32	.45 (83.3%)	.26 (60.0%)	.19 (10.0%)

Note. Convergent = average monotrait-heteromethod correlations; D_1 = average heterotrait-monomethod correlations; D_2 = average heterotrait-heteromethod correlations among psychopathy measures (near-neighbor comparisons), D_3 = average heterotrait-heteromethod correlations involving measures of depression and anxiety (distant-neighbor comparisons). Comparison violations are reported as percentages in parentheses.

Discriminant validity was addressed via heterotrait-monomethod and heterotrait-heteromethod correlations. Heterotrait-monomethod correlations examine each measure's interscale correlations of different traits. Heterotrait-monomethod correlations between Factor 1 and Factor 2 resulted in a mean r = .46. This estimate of discriminant validity exceeded all convergent validity coefficients except in two comparisons: (a) r = .52 for PCL:YV Factor 1 and the PSD CU scale and (b) r = .52 for PCL:YV Factor 2 and SRP-II Factor 2. With 10 violations out of 12 comparisons, the percentage of violations (83.3%) indicates extremely low discriminant validity when using heterotrait-monomethod correlations as the estimate of discriminant validity.

Heterotrait-heteromethod correlations constitute the second form of discriminant validity and are composed of near-neighbor comparisons and distant-neighbor

comparisons. Near-neighbor comparisons are defined as the average heterotrait-heteromethod correlations for closely-related constructs (i.e., Factor 1 and Factor 2). Distant-neighbor comparisons are defined as the average heterotrait-heteromethod correlations for dissimilar constructs (i.e., depression and anxiety). Overall, average heterotrait-heteromethod correlations for Factor 1 and Factor 2 (average r = .26) are slightly lower than estimates of convergent validity. Near-neighbor comparison violations for Factor 1 (53.0%) and Factor 2 (60.0%) are indicative of low discriminant validity according to the Bagozzi and Yi (1991) benchmarks.

An examination of distant-neighbor comparisons indicates the average heterotrait-heteromethod correlations for Factor 1 (r = .18) and Factor 2 (r = .19) are below the average level of convergent validity. Comparison violations were 25.0% for Factor 1 and 10.0% for Factor 2. Using distant-neighbor comparisons, moderate evidence of discriminant validity was found for both factors.

As previously noted, three of the measures utilized to assess psychopathy were developed based on the adult two-factor model. Focusing only on these three measures convergent validity for Factor 1 evidenced acceptable levels of convergent validity (average r = .35; see Table 6). Convergent validity for Factor 2 is slightly higher than Factor 1 (average r = .38). Overall discriminant validity for Factor 1 (average r = .31) was equivalent to convergent validity (average r = .31). Heterotrait-monomethod correlations exceeded convergent validity (average r = .40) and produced a comparison violation rate of 66.6%.

Table 6

Summary of Construct Validity with Second Generation Psychopathy Measures

Factor	Convergent Validity	Discriminant Validity		
		D_1	D_2	D_3
Factor 1	.35	.40 (33.3%)	.32 (66.6%)	.21 (25.0%)
Factor 2	.38	.40 (33.3%)	.32 (66.6%)	.18 (8.3%)

Note. Convergent = average monotrait-heteromethod correlations; D_1 = average heterotrait-monomethod correlations; D_2 = average heterotrait-heteromethod correlations among psychopathy measures (near-neighbor comparisons); D_3 = average heterotrait-heteromethod correlations involving measures of depression and anxiety (distant-neighbor comparisons). Comparison violations are reported in parentheses.

Near-neighbor comparisons averaged less than convergent validity for both Factors 1 and 2 (average r = .32). However, the correlations are nearly equal. Rates of comparison violations were 66.6% for both Factor 1 and Factor 2 indicating low discriminant validity. Average correlations representing distant comparisons indicate lower average discriminant validity than convergent validity. Comparison violation rates were 33.3% for Factor 1 and Factor 2. When using distant-neighbor comparisons, there is evidence of moderate discriminant validity for Factor 1 (25.0%) and Factor 2 (8.3%).

Table 7 reports method effects for the psychopathy measures. Method effects refer to average estimates of convergent and discriminant validity for individual measures. Regarding convergent validity, the PCL:YV is the only instrument which demonstrated minimum levels of convergent validity for both Factor 1 and Factor 2. The

PSD reached minimum levels of convergent validity for Factor 1 while the SRP-II attained a similar level of convergent validity for Factor 2.

Table 7

Summary of Method Effects with Second Generation Psychopathy Measures

Measure	Convergent Validity	Discriminant Validity D_1	D_2	D_3
PCL:YV				
Factor 1	.34	.60 (50.0%)	.24 (25.0%)	.11 (0.0%)
Factor 2	.32	.60 (50.0%)	.34 (66.6%)	.08 (0.0%)
PSD				
Factor 1	.37	.33 (0.0%)	.42 (25.0%)	.27 (25.0%)
Factor 2	.28	.33 (50.0%)	.12 (0.0%)	.15 (0.0%)
SRP-II				
Factor 1	.24	.28 (50.0%)	.12 (25.0%)	.43 (0.0%)
Factor 2	.38	.28 (50.0%)	.45 (100.0%)	.14 (75.0%
SALE				
Factor 1	.24	.49 (100.0%)	.26 (0.0%)	.04 (0.0%)
Factor 2	.28	.49 (100.0%)	.19 (33.3%)	.19 (16.6%)

Note. Convergent = average monotrait-heteromethod correlations; D_1 = average heterotrait-monomethod correlations; D_2 = average heterotrait-heteromethod correlations among psychopathy measures (near-neighbor comparisons); D_3 = average heterotrait-heteromethod correlations involving measures of depression and anxiety (distant-neighbor comparisons). Comparison violations are reported in parentheses.

Heterotrait-monomethod correlations among the measures vary depending on the type of measure. Among the self-report measures the PSD and SRP-II appear to be least affected

by high intercorrelations between Factor 1 and 2. Comparison violations for Factor 2 were consistently higher than Factor 1 with the noted exception of the SRP-II Factor 1 with a comparison violation rate of 62.0%. The PCL:YV produced the lowest comparison violation rates but still evidenced only moderate levels of discriminant validity.

Results Addressing Hypothesis #2

Hypothesis #2 stating that two dimensions of psychopathy and one dimension of internalizing disorders would be extracted was analyzed via PAF factor analysis. The following scales from the MTMM matrix were entered as variables into the factor analysis: PCL:YV F_1 and F_2, PSD C/U and I/CP, SRP-II F_1 and F_2, DISC-2.3 ANX and DEP, and ASI-4 DEP and ANX. The participant-to-variable ratio is approximately 10:1 which is within the acceptable range (see Hair et al., 1996; Stevens, 1999). Debate exists over the interpretation of significant factor loadings (Cliff & Hamburger 1967). With a sample size of approximately 100, factor loadings of .50 are considered significant (Stevens, 1996).

It was hypothesized that a three-factor solution would be obtained. The analysis was completed utilizing a principal axis factoring extraction and oblique rotation with factors extracted based on the minimum eigenvalues greater than 1.0 rule (Kaiser, 1960). An examination of the scree plot indicated two factors; the third factor eigenvalue approached 1.0 (eigenvalue = .910). Based on the hypothesized three-factor solution, the over- and under-factoring procedure recommended by Pedhauzer (1982) was used to examine the two, three, and four-factor solutions. The three-factor solution accounted for 56.5% of the variance with 6 variables having unique loadings. The four-factor solution

accounted for 61.4% of the variance with 6 variables having unique loadings. Results of the three and four-factor solutions are reported in Appendix D.

The two-factor solution was chosen since it yielded clearly identifiable dimensions. The two-factor solution accounted for 50.2% of the variance (see Table 8). Nine of the ten variables had unique loadings. One scale (SRP-II Factor 1) significantly crossloaded onto both factors. The first factor is composed of psychopathy scales representing both Factor 1 and 2. The first factor accounts for 27.8% of the variance and consists of 5 items. Both Factor 1 and Factor 2 scores from the psychopathy measures are represented in the factor. Factor 1 scales consistently produced high loadings (.70 and .67) except the SRP-II Factor 1 which crossloaded onto Factor 2. Factor 2 scales produced variable loadings ranging from .40 to .73.

The second factor "Internalizing Problems," accounts for 22.5% of the variance and includes both major depression and generalized anxiety scales from the DISC-2.3 and ASI-4. All scales produced consistently high loadings ranging from .67 to .75. This suggests that both anxiety and depression is highly representative of the factor.

The results indicate that the personality and behavioral dimensions of psychopathy did not separate into two distinct factors as hypothesized. As a single factor, both Factor 1 and Factor 2 scales are equally represented. The hypothesized single factor representing internalizing disorders was supported in the two-factor solution. An interesting result was found for the SRP-II Factor 1 scale. This scale significantly crossloaded onto both factors suggesting that the scale does not discriminate between psychopathy and internalizing problems. High scores on SRP-II Factor 1 are associated with the absence of anxiety and depression (see Table 4). An examination of the nine

items comprising this scale reveal that seven items directly reflect anxiety related symptoms. Scale items do not address other important Factor 1 characteristics (superficial charm, lack of remorse or guilt, failure to accept responsibility).

Table 8

Principal Axis Factor Analysis of Psychopathy and Internalizing Disorder Scales with an Oblique Rotation

Scale	Psychopathy	Internalizing Problems
PCL:YV Factor 2	.73	.06
PSD C/U	.70	-.06
SRP-II Factor 2	.69	-.05
PCL:YV Factor 1	.67	.02
PSD I/CP	.40	-.29
DISC-2.3 MDD	.12	-.75
DISC-2.3 GAD	-.18	-.70
ASI-4 GAD	.18	-.70
SRP-II Factor 1	.53	.69
ASI-4 MDD	.20	-.67
Eigenvalues	3.28	2.69
% of Variance	27.74%	22.48%

Note. To assist in interpretation, substantial loadings ($\geq$ .40) are underlined. Factors are correlated (r = -.11).

Results Addressing Hypothesis #3

Hypothesis #3 stating that ADHD will be associated with behavioral indices of psychopathy was analyzed by computing a correlation matrix with the following scales: DISC-2.3 ADHD, ASI-4 ADHD, and all psychopathy factor scales (PCL:YV F_1 and F_2, PSD CU and I/CP, and SRP-II F_1 and F_2).

As a single estimate of convergent validity, the correlation between ADHD scales across the two measures was highly significant ($r = .63$, $p < .001$). Correlations between Factors 1 and 2 were compared using the Fisher *z* transformation for correlations. Table 9 reports the results of Fisher *z*r for correlations comparing both the DISC-2.3 and ASI-4 ADHD scales. An examination of Table 9 indicates that the average correlations for Factor 2 scales appeared higher (average $r = .24$ and .36) than average correlations for Factor 1 (average $r = .10$ and .25). However the difference between the correlations was statistically nonsignificant.

Table 9

Psychopathy Factor 1 and Factor 2 Correlations with ADHD Scales

Scale	DISC-2.3 ADHD	ASI-4 ADHD
PCL:YV Factor 1	.03	.30**
PCL:YV Factor 2[a]	.11	.27**
Zr	.57	-.24
PSD CU	.30**	.46**
PSD I/CP	.27**	.33**
Zr	-.24	-1.10
SRP-II Factor 1	-.02	-.02
SRP-II Factor 2	.35**	.47**
Zr	2.75**	3.78**
Average Factor 1	.10	.25
Average Factor 2	.24	.36
Zr	1.04	.87

Note. * correlations are significant ($p < .01$).
** correlations are significant ($p < .001$).
[a] Factor 2 score is adjusted removing the score in the Impulsivity item.

Different patterns of correlations were noted across the psychopathy measures. All Factor 2 correlations were significant with both ADHD scales except for the PCL:YV Factor 2 and DISC-2.3 ADHD correlation. However, significant correlations were also found between Factor 1 scales with ADHD measures. Contrary to the hypothesized direction, the PSD CU scale correlates with both ADHD measures. Significant correlations were also found between PSD I/CP and ADHD measures; however, the magnitude of the PSD CU and ADHD correlations were consistently higher.

Strongest evidence of the hypothesized relationship was found for the SRP-II factors and ADHD with Factor 2 producing significantly higher correlations with the ADHD measures than Factor 1 with Fisher *z*r tests significant for both scales. A similar pattern of results was observed between the PCL:YV Factor scales and the ASI-4 ADHD scale. However, Fisher *z*r test was nonsignificant comparing the between the PCL:YV Factor 1 and Factor 2 correlations with the ASI-4 ADHD scale.

Results Addressing Hypothesis #4

Hypothesis #4 stated different CD age of onset would be found for psychopaths versus nonpsychopaths. This hypothesis was analyzed via one-way analysis of variance (ANOVA). Age of onset of conduct disorder symptoms was established by two separate methods (a) average age of onset and (b) earliest age of onset for a single symptom reported during the DISC-2.3 interview. For the entire sample, average age of onset for the sample was 11.97 years (SD = 2.27). Logically, earliest age of onset produced expected results with a slightly lower average for the entire sample (M = 9.66, SD = 3.59).

As described in the Methods chapter, PCL cut scores from Hare and McPherson (1984) were utilized to establish three groups (a) psychopaths ≥ 30, (b) mixed ≥ 22 < 30, and (c) nonpsychopaths < 22. Using the entire sample, the mixed and psychopath groups had 7 and 9 participants respectively. In order to improve statistical power, the mixed and psychopath groups were combined to form one group (i.e., Mixed/Psychopath). Using the two-groups as a single between subjects factor, Table 10 provides the descriptive information and the ANOVA results.

Table 10

ANOVA Results for Age of Onset X Psychopathy Groups

CD Onset	Non-Psychopath (n = 87)	Mixed/Psychopath[a] (n = 15)	F	p
Average	12.21 (2.32)	10.69 (1.37)	6.35	.01
Earliest	10.14 (3.49)	6.93 (2.96)	11.21	.001

Note. Average = average age of onset reported across all CD symptoms. Earliest = earliest age of onset reported for a single CD symptom. Standard deviations are reported in parentheses.
[a] Mixed/Psychopathic = participants with PCL:YV total score ≥ 22.

The resulting ANOVAs indicate that the mixed/psychopath group has a significant earlier age of onset of CD symptoms. An examination of means across the two ANOVAs suggests that the mixed/psychopath group has an onset of the first CD symptom in early childhood and multiple symptoms by age 10. In comparison, the nonpsychopath group has an average onset of the first CD symptom at age 10 and multiple symptoms by age

12. Thus, at the time when adolescents in the mixed/psychopath group exhibit multiple behavioral problems, adolescents in the nonpsychopath group were exhibiting the first CD symptom.

Results Addressing Hypothesis #5

Hypothesis #5 states that psychopaths will show poorer institutional adjustment than nonpsychopaths. The dichotomous categorization of psychopathy (i.e., nonpsychopaths and mixed/psychopaths) calculated for Hypothesis #4 was utilized in the analysis of the current hypothesis. Institutional adjustment was measured by summing the frequencies of institutional infractions for both samples. Verbal abuse and verbal threats correlated highly with many external indices. In order to reduce the statistical effect of multicollinearity composite variables were created by combining individual indices: verbal incidents = verbal abuse and verbal threats; noncooperation = refusal to comply with staff requests plus refusal to participate in treatment programs. Due to the low frequency of fighting (range from 0 to 10) and contraband (range from 0 to 8) both infractions were combined with verbal incidents and noncooperation to form an overall composite variable of total infractions. Room seclusions were analyzed separately because these seclusions are often the result of infractions.

Since the same institutional infractions were reviewed for both the Pre-Adjudication and Post-Adjudication samples, the two were combined due to the low base rate of psychopathy in the individual samples. As time spent in detention varied across the two samples (12 to 90 days), the number of days in detention was utilized as a covariate. The three composite variables and room seclusions were entered as separate

dependent variables and the dichotomous psychopathy variable was utilized as the independent variable in a series of one-way ANCOVAs.

Table 11 reports descriptive statistics and ANCOVA results. Results indicate a significant difference between groups on room seclusions. Participants in the mixed/psychopath group had more room seclusions than participants in the nonpsychopath group.

Table 11

ANCOVA Results for Institutional External Criteria X Psychopathy Groups

External Criteria	Nonpsychopath (n = 87)	Mixed/Psychopath (n = 15)	F	p
Verbal Incidents	1.35 (4.64)	2.67 (4.93)	1.52	.22
Noncompliance	3.17 (3.45)	4.47 (3.92)	1.08	.30
Total Infractions	4.99 (6.06)	8.06 (8.30)	1.81	.18
Room Seclusions	1.23 (2.95)	3.40 (5.51)	3.92	.05

Note. Standard deviations are reported in parentheses. Number of days in detention was entered as a covariate and significant in each ANCOVA. Total infractions = count of verbal incidents, noncompliance, fighting, and contraband. Room seclusions = count of placement in room by a staff member.

No significant differences were found between groups on the institutional infractions of verbal incidents and noncompliance. Predictably, the total infractions variable also produced nonsignificant results. A visual inspection of the means suggests

descriptive differences between the groups. However, the size of the standard deviations precluded finding significance suggesting that the group classification of psychopathy is a poor discriminator of total institutional infractions.

Table 12 shows the correlations of the external criteria and PCL:YV scores for the two samples. A visual inspection of Table 12 suggests differential patterns of correlations across the two samples. In the Pre-Adjudication sample, PCL:YV scores show almost no relation to the institutional criteria. This result suggests that psychopathy scores are not likely to predict institutional infractions in the Pre-Adjudication sample. Different results were obtained for the Post-Adjudication sample with moderate correlations being found between PCL:YV Factor 2 and a number of the institutional criteria.

Table 12

Correlations of Detention External Criteria and PCL:YV Scores X Sample

Sample	Verbal Incidents	Noncompliance	Total Infractions	Room Seclusions
Post Adjudication				
PCL:YV Total	.30	.40*	.36*	.36*
PCL:YV Factor 1	.12	.32	.21	.24
PCL:YV Factor 2	.37*	.37*	.39*	.40*
Pre-Adjudication				
PCL:YV Total	.06	.02	.04	.08
PCL:YV Factor 1	.08	.14	.15	.18
PCL:YV Factor 2	.08	-.06	-.04	-.01

Note. * $p < .05$.

Utilizing data from the Post-Adjudication sample only, the incremental validity of psychopathy in predicting institutional infractions was tested. Factor 1 and Factor 2 were utilized as predictors in a series of hierarchical multiple regressions with the institutional infractions and room seclusions serving as criterion variables. Results of the regression analyses are reported in Table 13.

Table 13

Summary of Simple and Hierarchical Regression Analyses for PCL:YV Factor Scores Predicting Institutional Infractions in the Post-Adjudication Sample

External Criteria	β	t	p	ΔR^2	F	p
Verbal Incidents						
Step 1a: Factor 1	.12	.60	.01	.01	.36	.56
Step 1b: Factor 2	.73	2.04	.05	.14	4.17	.05
Step 2: Factor 2	.43	1.98	.06	.15	2.16	.14
Factor 1	-.12	-.53	.60			
Noncooperation						
Step 1a: Factor 1	.32	1.73	.09	.07	2.96	.09
Step 1b: Factor 2	.37	2.03	.05	.10	4.12	.05
Step 2: Factor 2	.28	1.28	.21	.09	2.34	.12
Factor 1	.17	.79	.44			
Total Infractions						
Step 1a: Factor 1	.21	1.10	.28	.01	1.21	.28
Step 1b: Factor 2	.40	2.21	.04	.13	4.89	.04
Step 2: Factor 2	.40	1.84	.08	.09	-2.35	.12
Factor 1	-.01	-.11	.99			
Room Seclusions						
Step 1a: Factor 1	.24	1.29	.21	.06	1.66	.21
Step 1b: Factor 2	.40	2.20	.04	.13	4.97	.04
Step 2: Factor 2	.38	1.73	.09	.09	2.39	.11
Factor 1	.04	.20	.84			

Note. Steps 1a and 1b are separate simple regression models.

An examination of Table 13 indicates that Factor 2 was a single significant predictor of all institutional criteria. Each Factor 2 model was significant but accounted for a modest (i.e., 10 to 14%) percentage of the variance. The addition of Factor 1 (i.e., Step 2) added no incremental validity to the prediction of individual criteria. The amount of variance accounted for within each model decreased when Factor 1 was added. Because of the small sample size, these results are preliminary. However, they indicate that Factor 1 characteristics are not predictive of institutional infractions among adolescent offenders at this level of placement.

For the Pre-Adjudication sample, an additional set of external criteria for community supervision variables was extracted from computer files (see Appendix C). The two-group classification of psychopathy, utilized in the previous analyses, resulted in 67 nonpsychopaths (88.2%) and 9 mixed/psychopaths (11.8%). Due to the low frequency of phone calls and field visits, the probation contact variables were combined into a composite variable of probation contacts. Probation contacts and number of days detained were entered as dependent variables in one-way ANOVAs. The dichotomous classification of nonpsychopath and mixed/psychopath was utilized as the independent variable. Due to restricted ranges, the remaining variables (drug tests, new court appearances, noncompliance with probation, and re-detention) were dichotomized and analyzed via chi-square analysis. Table 14 reports descriptive statistics and significance tests for the community supervision external criteria.

Results in Table 14 indicate no differences between the nonpsychopath and mixed/ psychopath groups on community supervision variables except for new detentions. No participant had more than 1 new detention; however, detention varied

from no detentions (n= 56), placement in short-term detention (n = 17), or transfer into a state correctional facility (n = 3). An examination of cell frequencies indicated that psychopaths received new detentions at a higher frequency than nonpsychopaths. Twenty-one percent of the nonpsychopaths (14 of 67) received new detentions compared to 66.7% (6 of 9) of the mixed/psychopaths.

Table 14

Results for Community Supervision External Criteria X Psychopathy Groups

External Criteria	Nonpsychopaths (n = 67)	Mixed Psychopaths (n = 9)	F/χ^2	p
Probation Contacts	10.96 (8.69)	7.44 (8.17)	1.29	.26
Number of Days Detained	19.69 (14.82)	19.88 (12.96)	.01	.99
Use of Drug Tests				
No	47 (61.8%)	4 (5.3%)	2.36	.12
Yes	20 (26.3%)	5 (6.6%)		
New Court Appearances				
No	51 (67.1%)	6 (7.9%)	.38	.54
Yes	16 (21.1%)	3 (3.9%)		
Probation Noncompliance				
No	56 (73.7%)	8 (10.5%)	.17	.68
Yes	11 (14.5%)	1 (1.3%)		
New Detentions				
No	53 (69.7%)	3 (3.9%)	8.57	.003
Yes	14 (18.4%)	6 (7.9%)		

Note. Standard deviations for continuous variables are reported in parentheses. Percentages for categorical variables are reported in parentheses.

Table 15 reports correlations between PCL:YV scores and the community supervision criteria. The results indicate that PCL:YV scores have little relation to many of the community supervision criteria. Based on the correlations, use of drug tests and new detentions were selected for further analysis.

Table 15

Correlations of Community Supervision Criteria and PCL:YV Scores

Score	PC	DD	DT	NC	NP	ND
PCL:YV Total	.03	.03	.30**	.06	.18	.36**
PCL:YV Factor 1	.00	.06	.19	.01	.17	.25*
PCL:YV Factor 2	.03	.01	.31**	.13	.12	.44**

Note. PC = Probation Contacts, DD = Number of Days Detained; DT = Use of Drug Tests; NC = New Court Appearances; NP = Noncompliance with Probation; ND = New Detention.
* $p < .05$
** $p < .01$

Two stepwise discriminant function analyses were run to evaluate the predictive power of Factor 1 and Factor 2 scores on use of drug tests and new detentions. Regarding use of drug tests, the resulting discriminant function was statistically significant (Wilks' lambda = .91, $df = 1,74$, $p = .007$) but only accounted for 9.5% of the variance. PCL:YV Factor 2 was the only scale to enter the function (discriminant coefficient = .91). The discriminant function produced an overall classification rate of 71.1%, correctly classifying 94.1% of the sample without drug tests and 24.0% with drug tests.

A significant discriminant function was also found for new detentions (Wilks' lambda = .80, df = 1, 74, p = .000) which accounted for 19.7% of the variance. Similar to the result found above, only the PCL:YV Factor 2 scale entered the function (discriminant coefficient = .80). The discriminant function produced an overall classification rate of 78.9%; correctly classified 92.8% of the sample who were not redetained and 40.0% of the sample who were detained.

Results Addressing Hypothesis #6

Hypothesis #6 stating that the PSD and SRP-II will serve as effective screening instruments for psychopathy was analyzed by calculating utility estimates (hit rate, sensitivity, specificity, positive predictive power, and negative predictive power). In previous analyses, the dichotomous psychopathy variable was based upon combining psychopaths ($\geq$ 30) and mixed psychopaths ($\geq$ 22 and < 30). However, a cut score of 22 would inflate the base rate of psychopathy and produce utility estimates that may result in an unacceptable number of false positives. Due to the lack of published cut scores for the PCL:YV, two benchmarks for dichotomous classifications were tested. Hare (1991) established a cut score $\geq$ 30 (i.e., 75% of the total score) to classify psychopaths on the PCL-R. As previously noted, Salekin et al. (1996) reported that PCL/PCL-R scores $\geq$ 25 have been utilized to classify psychopaths in predictive research.

Cut scores are not available for the PSD. Therefore, a rational approach was utilized to determine appropriate cut scores for the PSD. Total scores on the PSD range from 0 to 40 similar to the PCL-R. Therefore, an initial cut score of 30 (75% of the total score) was utilized as the initial benchmark. Further cut scores were tested in an attempt to optimize overall classification.

The initial SRP-II cut score was established by Hemphill (1999). According to the scoring criteria, 59 SRP-II items (scored on a scale from 1 to 7) are summed resulting in a maximum total score of 413. Using the PCL-R classification strategy (i.e., 75% of the total score), the initial cut score was established as 310. Due to the exploratory nature of this analysis, cut scores were established by decreasing increments of 5%. The results of this approach are reported in Table 16 and 17.

Based on the results in Table 16 and 17, the cut score representing the 75% rule (cut score = 310) demonstrated excellent specificity and NPP across the two PCL:YV cut scores. However, low sensitivity rates would caution against using this cut score. A cut score of 252 appeared to maximize the rates of sensitivity and specificity while maintaining a high level of NPP. With an SRP-II cut score of 252, adequate levels of sensitivity and excellent levels of NPP were obtained for both PCL:YV cut scores. This cut score reduces the number of false negatives while effectively screening out adolescents who would not need further evaluation with the PCL:YV.

Table 16

Utility Estimates for SRP-II Total Cut Scores with PCL:YV > 30 for Psychopaths

Cut Score	Sens	Spec	PPP	NPP	HR
310	.29	.99	.67	.95	.94
294	.43	.97	.50	.96	.93
279	.57	.91	.31	.97	.88
265	.57	.82	.19	.96	.80
252	.71	.69	.14	.97	.70

Note. Sens = sensitivity, Spec = specificity, PPP = positive predictive power, NPP = negative predictive power, HR = hit rate. For psychopaths, n = 7; For nonpsychopaths, n = 98.

Table 17

Utility Estimates for SRP-II Total Cut Scores with PCL:YV > 25 for Psychopaths

Cut Score	Sens	Spec	PPP	NPP	HR
310	.18	.99	.67	.90	.90
294	.36	.98	.67	.92	.91
279	.54	.92	.46	.94	.88
265	.54	.82	.28	.93	.79
252	.73	.69	.24	.95	.70

Note. Sens = sensitivity, Spec = specificity, PPP = positive predictive power, NPP = negative predictive power, HR = hit rate. For psychopaths, n = 11; For nonpsychopaths, n = 94.

A different approach was utilized in calculating utility estimates for the PSD. The rating criteria for items on the PSD are equivalent to the PCL:YV (20 items scored on 0 to 2 scale). Therefore, instead of using decreasing increments based on percentage of the total score, Tables 18 and 19 report decreasing increments of 2 points for each of the two PCL:YV cut scores (30 and 25).

The initial cut score of 30 was developed based on the 75% rule utilized with the PCL-R. On the PSD, this cut score produced excellent rates of specificity and negative predictive power. However, the sensitivity and positive predictive power make this cut score unacceptable regardless of the cut score used for the PCL:YV. An examination of the descending PSD cut scores indicated that a cut score of 24 maintained high rates of specificity and negative predictive power while increasing the sensitivity when PCL:YV > 30. Similar to results with the SRP-II, this cut score is likely to produce an unacceptable number of false positives with a PPP = .27.

Table 18

Utility Estimates for PSD Total Cut Scores with PCL:YV > 30 for Psychopaths

Cut Score	Sens	Spec	PPP	NPP	HR
30	.00	.99	.00	.93	.92
28	.00	.97	.00	.93	.90
26	.28	.95	.29	.95	.90
24	.43	.92	.27	.96	.88
22	.43	.79	.12	.95	.76
20	.71	.69	.14	.97	.69

Note. Sens = sensitivity, Spec = specificity, PPP = positive predictive power, NPP = negative predictive power, HR = hit rate. For psychopaths, n = 7; For nonpsychopaths, n = 98.

Table 19

Utility Estimates for PSD Total Cut Scores with PCL:YV > 25 for Psychopaths

Cut Score	Sens	Spec	PPP	NPP	HR
30	.00	.99	.00	.89	.88
28	.00	.97	.00	.88	.86
26	.18	.94	.29	.90	.86
24	.27	.91	.27	.91	.84
22	.45	.79	.21	.92	.75
20	.82	.70	.25	.97	.72

Note. Sens = sensitivity, Spec = specificity, PPP = positive predictive power, NPP = negative predictive power, HR = hit rate. For psychopaths, n = 11, For nonpsychopaths, n = 94.

Similar to results obtained with the SRP-II, classification was maximized when lower PSD cut scores were used. For example, using a PSD cut score of 20, at PCL:YV > 25, sensitivity was increased with an acceptable decrease in specificity. However, negative predictive power remained quite high at .97. Regardless of the cut score used,

PPP remained extremely low for the PSD. This result indicates that the PSD is likely to over-identify individuals as psychopaths.

Thus, in testing the hypothesis, the SRP-II and PSD may serve as screens for psychopathy, results suggest that the identified cut scores will accurately identify adolescents who will benefit from further evaluation with the PCL:YV (high rates of sensitivity and NPP). The cut scores established here effectively reduced the number of false negatives for the self-report measures at the expense of increasing the number of false positives. Considering the time involved and amount of data required for the administration and scoring of the PCL:YV, the low rates of specificity and PPP contributing to the number of false positives may be unacceptable in clinical practice. Further caution is warranted in utilizing these cut scores based on a low base rate of psychopathy. The cut scores generated here are optimally fit to the current data and may not generalize to samples where base rates of psychopathy are greater.

Supplemental Analyses

Past research has supported the utility of the MTMM design to evaluate construct validity (Campbell & Stanley, 1966). Two problems existed in utilizing MTMM with the present data. First, measures of internal consistency for two of the self-report psychopathy measures fell below acceptable standards. Examination of reliability analyses for the two measures indicated that little improvement could be attained in the overall alphas by removal of specific items (see Appendix E). Second, the average heterotrait-monomethod correlations between Factors 1 and 2 (average $\underline{r} = .40$) exceeded estimates of convergent validity. As found within the adult literature, Factor 1 and Factor 2 are significantly correlated.

An important question that was not previously addressed is the possibility of systematic differences between the two research samples on the psychopathy measures. Although the samples did not differ on demographic variables (age and race), the two groups differed on offense variables (misdemeanors and status offenses). As reported in Table 20, Factor 2 differences were consistently shown across all three psychopathy measures with the Post-Adjudication sample having significantly higher Factor 2 scores than the Pre-Adjudication sample. Total score differences were noted across the three measures. Factor 1 scores did not significantly differ, suggesting that the Factor 2 differences are plausible contributors to the total score differences.

In addition to measure differences, diagnostic differences were compared across the two samples (see Table 21). Similar to the results found for Factor 2, the frequency of CD diagnoses (yes, no) by sample (pre, post) produced a significant chi-square $\chi^2(1) = 5.79$, $\underline{p} < .05$. Participants in the Post-Adjudication sample were five times (odds ratio = 5.50) more likely to meet CD diagnostic criteria than participants in the Pre-Adjudication sample. In other words, 93.1% (27 of 29) of the Post-Adjudication sample met criteria for the CD diagnosis compared to 71.1% (54 of 76) of the Pre-Adjudication sample. The two samples did not significantly differ on other diagnoses. Although the chi-square analysis was nonsignificant, Post-Adjudication participants were two times as likely (odds ratio = 2.37) to meet psychopathy and (odds ratio = 2.33) MDD criteria.

Table 20

Psychopathy Factor and Total Scores X Sample

Measure	Pre-Adjudication n = 76	Post-Adjudication n = 29	F	p
PCL:YV Factor 1	4.07 (3.78)	4.70 (3.39)	.67	.42
PCL:YV Factor 2	6.44 (3.19)	9.14 (3.33)	14.57	.0005
PCL:YV Total	12.55 (6.88)	16.72 (7.28)	7.48	.007
PSD CU	4.67 (2.20)	5.38 (2.16)	2.20	.14
PSD I/CP	8.14 (2.95)	10.62 (5.58)	8.69	.004
PSD Total	15.76 (5.82)	18.34 (5.25)	4.35	.04
SRP-II Factor 1	35.59 (7.12)	38.48 (7.42)	3.34	.07
SRP-II Factor 2	47.92 (15.05)	55.82 (17.12)	5.30	.02
SRP-II Total	116.55 (26.91)	133.83 (24.82)	8.93	.004

Note. Standard deviations are reported in parentheses.

Table 21

Program Classification and Occurrence of Childhood Disorders

Disorder	Post-Adjudication (n = 29)	Pre-Adjudication (n = 76)	χ^2	Odds Ratio
Psychopathy				
Mixed/Psychopath	7 (6.7%)	9 (8.6%)	2.46	2.37
Nonpsychpaths	22 (21.0%)	67 (63.8%)		
CD				
Present	27 (25.7%)	54 (51.4%)	5.79*	5.50
Absent	2 (1.9%)	22 (21.0%)		
ODD				
Present	10 (9.5%)	21 (20.0%)	.47	1.38
Absent	19 (18.1%)	55 (52.4%)		
ADHD-I				
Present	4 (3.8%)	9 (8.6%)	.07	1.19
Absent	25 (23.8%)	67 (63.8%)		
ADHD-H				
Present	3 (2.9%)	5 (4.8%)	.42	1.64
Absent	26 (24.8%)	71 (67.6%)		
ADHD-C				
Present	2 (1.9%)	3 (2.9%)	.40	1.80
Absent	27 (25.7%)	73 (69.5%)		
MDD				
Present	10 (9.5%)	14 (13.3%)	3.07	2.33
Absent	19 (18.1%)	62 (59.0%)		
GAD				
Present	2 (1.9%)	4 (3.8%)	.10	1.33
Absent	27 (25.7%)	72 (68.6%)		

Note. Odds ratios are calculated indicating the likelihood of the diagnosis when classified in the Post-Adjudication sample. CD = Conduct Disorder; ODD = Oppositional Defiant Disorder; ADHD-I = Attention-Deficit/Hyperactivity Disorder Inattentive Subtype; ADHD-H = Attention-Deficit/Hyperactivity Disorder Hyperactive/Impulsive Subtype; ADHD-C = Attention-Deficit/Hyperactivity Disorder – Combined Subtype; MDD = Major Depressive Disorder; GAD = Generalized Anxiety Disorder.

* $p < .05$

An additional factor analysis was performed using only Factor 1 and Factor 2 scales from the psychopathy measures. This analysis was completed in order to verify whether adolescent psychopathy is best conceptualized as one or two factors. Both 1 and 2 factor solutions were calculated utilizing PAF with oblique rotations. The following scales were included in the factor analysis: PCL:YV Factor 1 and 2, SRP-II Factor 1 and 2, and PSD CU and I/CP scales.Table 20

The two-factor solution accounted for 64.5% of the variance. The explained variance for the two factors was 48.3% and 16.2%, respectively. Results of the two-factor solution are reported in Table 22. The two-factor solution resulted in a weak second factor with only one unique loading and two cross-loadings (PSD I/CP Scale and SRP-II Factor 2).

The one-factor solution accounted for 39.3% of the variance (see Table 23). This factor solution supports one underlying dimension to adolescent psychopathy with substantial factor loadings noted for all six variables. An examination of the solution indicates equal representation of Factor 1 and Factor 2 scales from both self-report and interview measures. SRP-II Factor 1 and PSD I/CP produced relatively weak loadings (.41 and .40 respectively) when compared to the other scales (range from .67 to .75).

Based on the single underlying dimension, total psychopathy scores were considered within a modified MTMM paradigm. More specifically, psychopathy scores were compared to symptom counts and severity scores for the following diagnoses: CD, ODD, ADHD, GAD, and MDD. Utilizing MTMM terminology, psychopathy and the respective disorders are considered traits and the psychopathy measures, DISC-2.3, and

Table 22

PAF of Factor 1 and Factor 2 Psychopathy Scales: Two Factor Solution

Scale	Factor 1	Factor 2
PCL:YV Factor 2	.77	.14
SRP Factor 1	.76	-.29
PCL:YV Factor 1	.76	.08
PSD CU Scale	.56	.41
PSD I/CP Scale	.08	.89
SRP Factor 2	.46	.56
Eigenvalue	2.90	.97
% of Variance	48.33%	16.21%

Note. To assist in interpretation, substantial loadings (≥ .40) are underlined.

Table 23

PAF of Factor 1 and Factor 2 Psychopathy Scales: One Factor Solution

Scale	Psychopathy
PCL:YV Factor 2	.75
SRP Factor 2	.72
PSD CU	.71
PCL:YV Factor 1	.67
SRP Factor 1	.41
PSD I/CP	.40
Eigenvalue	2.90
% of Variance	39.27%

Note. To assist in interpretation, substantial loadings (≥ .40) are underlined.

ASI-4 scales are considered methods. The externalizing disorder serve as convergent validity traits and the internalizing disorders serve as discriminant validity traits. Results reported in Table 24 indicate that psychopathy is correlated with CD (average $\underline{r}$ = .61) and ODD (average $\underline{r}$ = .50). Psychopathy is moderately correlated with ADHD (average $\underline{r}$ = .39) and shows little association with MDD (average $\underline{r}$ = .16) and GAD (average $\underline{r}$ = .09).

As a followup to the above supplemental analysis, a factor analysis was computed using the variables listed in Table 24. The analysis was completed utilizing a PAF extraction and oblique rotation with factors extracted based on the minimum eigenvalues greater than 1.0 rule (Kaiser, 1960). Inspection of eigenvalues and the scree plot suggested a three-factor solution. The over- and under-factoring procedures recommended by Pedhauzer (1982) found that the two-factor solution had 2 crossloading variables and 1 variable which did not load on either factor. The four-factor solution had 9 crossloading variables. The results for the two- and four-factor solutions are reported in Appendix F. The three-factor solution accounts for 61.2% of the variance and is reported in Table 25.

Factor 1 (Conduct) is comprised of 5 unique items and accounted for 41.0% of the variance. The Conduct Factor is composed of both conduct disorder scales and psychopathy scales. An examination of factor loadings indicates that CD scales are more salient than psychopathy on Factor 1; however, the psychopathy scales have substantial factor loadings. ODD scales produced one weak loading on the Conduct Factor (DISC-

2.3 ODD). The ASI-4 ODD scale was crossloaded across all three factors and produced low factor loadings.

Table 25

Principal Axis Factor Analysis of Psychopathy Total Scores and Childhood Disorder Scales

Scale	Conduct	Internalizing	Attention
ASI-4 CD	.88	.11	.06
SRP-II Total	.81	-.26	-.16
DISC-2.3 CD	.79	.03	.12
PCL:YV Total	.72	.01	.07
PSD Total	.67	.01	-.31
DISC-2.3 ODD	.45	.25	-.30
ASI-4 ODD	.38	.33	-.38
DISC-2.3 MDD	.06	.76	.08
DISC-2.3 GAD	-.15	.70	.07
ASI-4 MDD	.12	.66	.07
ASI-4 GAD	.02	.60	-.22
DISC-2.3 ADHD	-.11	.02	-.84
ASI-4 ADHD	.16	.08	-.66
Eigenvalues	5.67	2.36	1.08
% of Variance	40.95	14.96	5.24

Note. To assist in interpretation, substantial loadings (≥ .40) are underlined.

Factor 2 (Internalizing) is comprised of 4 unique items and accounts for 15.0% of the variance. This factor represents the internalizing disorders of anxiety and depression. All factor loadings are substantial with no crossloadings. An interesting finding is that scales derived from the interview-based DISC-2.3 appear more salient than self-report measures.

Factor 3 (Attention) is a modest factor with two unique items that account for 5.2% of the variance. Despite having two items, the Attention Factor is consistent in that the two scales measuring ADHD symptomatology form the factor. The magnitude of the factor loadings suggest that the factor is distinct from the other identified dimensions.

This set of supplementary analyses suggests that there is strong evidence of construct validity for psychopathy as a single construct. The above factor analysis indicates that total psychopathy scores and conduct problems represent a single dimension. Among the externalizing disorders, this relationship is more pronounced for CD than ODD suggesting that severity of conduct disturbance is also represented in the first factor. Both internalizing and attentional disorders constitute different dimensions.

In order to examine diagnostic differences between the psychopathy groups, DISC-2.3 diagnoses were entered into separate cross-tabulation matrices along with the two-group psychopathy classification. Results of the chi-square analyses and odds ratios are presented in Table 26. Frequency of CD diagnosis did not differ across the psychopathy groups. In an unexpected result, the frequency of psychopathy classification (yes, no) by ODD diagnosis (yes, no) produced a significant chi-square $\chi^2(1) = 9.87$, $\underline{p} < .01$. Psychopaths were five times (odds ratio = 5.40) more likely to meet ODD diagnostic criteria than nonpsychopaths. In combining both CD and ODD diagnoses, significant frequency differences were also found $\chi^2(1) = 8.45$, $\underline{p} < .01$. Psychopaths were four times (odds ratio = 4.74) more likely to meet both CD and ODD diagnostic criteria than nonpsychopaths.

Table 26

Psychopathy Classification and Occurrence of Childhood Disorders

Disorder	Nonpsychopath	Mixed/Psychopath	χ^2	Odds Ratio
CD				
Present	68 (64.8%)	13 (12.4%)	.19	1.33
Absent	21 (20.0%)	3 (2.9%)		
ODD				
Present	21 (20.0%)	10 (9.5%)	9.87*	5.40
Absent	68 (64.8%)	6 (5.7%)		
Both CD/ODD				
Present	19 (18.0%)	9 (8.6%)	8.45*	4.74
Absent	70 (66.7%)	7 (6.7%)		
ADHD-I				
Present	10 (9.5%)	3 (2.9%)	.71	1.82
Absent	79 (75.2%)	13 (12.4%)		
ADHD-H				
Present	7 (6.7%)	1 (1.0%)	.05	.78
Absent	82 (78.1%)	15 (14.3%)		
ADHD-C				
Present	5 (4.8%)	0 (0.0%)	.94	0.00
Absent	84 (80.0%)	16 (15.2%)		
MDD				
Present	18 (17.1%)	6 (3.7%)	2.30	2.37
Absent	71 (67.6%)	10 (9.5%)		
GAD				
Present	6 (5.7%)	0 (0.0%)	1.14	0.00
Absent	83 (79.0%)	16 (15.2%)		

Note. Odds ratios are calculated indicating the likelihood of the diagnosis when classified in the mixed psychopathy group. CD = Conduct Disorder; ODD = Oppositional Defiant Disorder; ADHD-I = Attention-Deficit/Hyperactivity Disorder Inattentive Subtype; ADHD-H = Attention-Deficit/Hyperactivity Disorder Hyperactive/Impulsive Subtype; ADHD-C = Attention-Deficit/Hyperactivity Disorder – Combined Subtype; MDD = Major Depressive Disorder; GAD = Generalized Anxiety Disorder.

* $p < .01$

Regarding the predictive validity of psychopathy, results were limited by the small number of participants classified as psychopaths. Low frequencies of some external criteria (i.e., fighting and contraband) suggest that the criteria may be inapplicable to the sample or affected by the length of followup. Due to the small sample size (n = 29), multivariate procedures were inappropriate for the post-adjudication sample. As a supplementary analyses, PCL:YV total scores were split along the median for the Post Adjudication sample (total score = 16). A series of one-way ANOVAs were calculated with the results reported in Table 27.

Table 27

ANOVA Results for the Post-Adjudication Sample External Criteria X PCL:YV Median Split

External Criteria	Level of Psychopathy Above Median	Below Median	F	p
Verbal Incidents	5.79 (5.83)	1.36 (1.37)	7.67	.01
Noncooperation	6.50 (5.23)	1.75 (3.29)	9.41	.005
Fighting	.43 (.51)	.29 (.83)	.32	.59
Seclusions	7.07 (6.26)	2.14 (3.23)	6.86	.01
Contraband	1.34 (1.28)	1.21 (.80)	.13	.73

Note. Median split is PCL:YV total score < 16 versus ≥ 16.

Participants with a total PCL:YV score greater than 16 had significantly more verbal abuse and threats, room seclusions, and noncooperation. As operationalized, noncooperation includes both noncompliance with staff requests and refusals to participate in treatment programming.

All psychopathy measures used in the present study were rationally developed from the PCL-R and its subsequent versions. In following the tradition of the PCL-R, it is presumed that the PCL:YV will become the "gold standard" in evaluating psychopathy in adolescent populations. As a final supplementary analysis, PCL:YV items were analyzed via confirmatory factor analysis (CFA) in order to evaluate the underlying factor structure of this measure.

Based upon the exploratory factor analyses, three potential models were identified: (a) one-factor model (combining traditional Factor 1 and Factor 2), (b) two-factor model (consistent with the adult two-factor model), and (c) a three-factor model (two first-order factors consistent with the adult two-factor model and a third second-order factor comprised of the two first-order factors). Prior to the CFA, examination of the PCL:YV items resulted in the removal of Item 9 (Parasitic Lifestyle) due to an unacceptable kurtosis value (27.87). The initial two-factor model resulted in a modest fit with a Comparative Fit Index = .83. Multivariate Lagrange Multipler and the Wald test recommendations were utilized to assist with model modifications (Bentler, 1995). These modifications included (a) moving Item #13 from Factor 2 to Factor 1, and (b) allowing PCL:YV Items 12 and 18 (Early Behavior Problems and Juvenile Delinquency) to crossload. The resulting models are reported in Tables 28-30.

Table 28

Confirmatory Factor Analysis of PCL:YV Items – One Factor Solution

Item	Factor 1
Glib/Superficial Charm	.54 (.84)
Grandiose Self-Worth	.64 (.77)
Need for Stimulation	.29 (.95)
Pathological Lying	.46 (.89)
Conning/Manipulative	.69 (.72)
Lack of Remorse or Guilt	.61 (.79)
Shallow Affect	.43 (.90)
Callous/Lack of Empathy	.72 (.69)
Poor Anger Controls	.56 (.83)
Early Behavior Problems	.71 (.70)
Lacks Goals	.34 (.94)
Impulsivity	.37 (.93)
Irresponsibility	.38 (.93)
Failure to Accept Responsibility	.46 (.89)
Juvenile Delinquency	.59 (.81)
Violation of Conditional Release	.44 (.90)
Goodness of Fit Summary	
Satorra-Bentler Scaled Chi-Square	172.05 (101), $p < .0001$
Comparative Fit Index (CFI)	.814
Robust Comparative Fit Index	.815

Note. Unique/error variance is reported in parentheses.

Table 29

Confirmatory Factor Analysis of PCL:YV Items – Two Factor Solution

Item	Factor 1	Factor 2
Glib/Superficial Charm	.57 (.82)	
Grandiose Self-Worth	.64 (.76)	
Need for Stimulation		.43 (.90)
Pathological Lying	.46 (.89)	
Conning/Manipulative	.71 (.71)	
Lack of Remorse or Guilt	.61 (.79)	
Shallow Affect	.48 (.88)	
Callous/Lack of Empathy	.76 (.65)	
Poor Anger Controls		.71 (.71)
Early Behavior Problems	.46 (.70)	.34 (.70)
Lacks Goals	.36 (.93)	
Impulsivity		.46 (.88)
Irresponsibility		.52 (.85)
Failure to Accept Responsibility	.48 (.88)	
Juvenile Delinquency	.33 (.79)	.36 (.79)
Violation of Conditional Release		.57 (.82)
Goodness of Fit Summary		
Satorra-Bentler Scaled Chi-Square	136.29 (101), p = .01	
Comparative Fit Index (CFI)	.896	
Robust Comparative Fit Index	.904	

Note. Error/unique variance is reported in parentheses.

Table 30

Confirmatory Factor Analysis of PCL:YV Items – Three Factor Solution (2 First Order and 1 Second Order)

Item	Factor 1	Factor 2	Factor 3
Glib/Superficial Charm	.57 (.82)		
Grandiose Self-Worth	.65 (.76)		
Need for Stimulation		.43 (.90)	
Pathological Lying	.46 (.89)		
Conning/Manipulative	.71 (.71)		
Lack of Remorse or Guilt	.61 (.79)		
Shallow Affect	.48 (.88)		
Callous/Lack of Empathy	.76 (.65)		
Poor Anger Controls		.71 (.70)	
Early Behavior Problems	.46 (.70)	.34 (.70)	
Lacks Goals	.36 (.93)		
Impulsivity		.46 (.89)	
Irresponsibiity		.52 (.85)	
Failure to Accept Responsibility	.48 (.88)		
Juvenile Delinquency	.33 (.79)	.37 (.79)	
Violation of Conditional Release		.57 (.82)	
Factor 1			.88 (.47)
Factor 2			.67 (.74)
Goodness of Fit Summary			
Satorra-Bentler Scaled Chi-Square	136.28 (101), p = .01		
Comparative Fit Index (CFI)	.896		
Robust Comparative Fit Index	.904		

Note. Error/unique variance is reported in parentheses.

Results of the CFA indicate that both the two- and three-factor models are an adequate fit for the PCL:YV data. Both models produced identical fit indices (Comparative Fit Index = .896, Robust Comparative Fit Index = .90). Chi-square values indicate that the models are nearly identical with only a slight decrease in the chi-square value for the three-factor model. The average absolute standardized residuals (AASR) were also examined to assess how well the model was able to reproduce the observed data. Both the two-factor and three-factor models have an AASR = .05. The root mean square error of approximation (RMSEA) was also used to assess model fit as this index measures how well the model fits the data in the population. For both models the RMSEA = .06 which suggests good fit. All factor loadings for Factors 1 and 2 were significant with factor loadings ranging from .33 to .76. Items most representative of Factor 1 include Callous/Lack of Empathy and Conning/Manipulative. Poor Behavior Controls and Violation of Conditional Release are most representative of Factor 2. Regarding the crossloadings, Juvenile Delinquency is a weak contributor to both Factors; however, Early Behavior Problems shows moderate factor loadings on both PCL:YV factors.

CHAPTER IV

DISCUSSION

The accurate identification and classification of juveniles who are most likely to commit serious crimes and progress to adult antisocial behavior is a critical issue. Effective intervention and prevention programs require an understanding of the etiology, phenomenology, and long-term outcomes of childhood antisocial behavior. Research gains have been made in refinement of the traditional classification models (see Moffit, 1993; Silverthorn & Frick, 1999) and the investigation of the applicability of the construct of psychopathy to juveniles (Forth, Hart, & Hare, 1990; Forth, Kosson, & Hare, 1994, Forth & Burke, 1998; Frick, 1998a; Frick, O'Brien, Wootton, & McBurnett, 1994b; Rogers, Johansen, Chang, & Salekin, 1997).

Psychopathy has been described as the single most important clinical construct in the criminal justice system (Hart, 1998; Hare, 1996; Hare, 1998b). Research with adult male offenders has shown that psychopathy is related to general and violent recidivism (Hemphill et al., 1998; Salekin et al., 1996) and institutional management problems (Blackburn, 1993; Hare, 1996; Losel, 1998). This research has advanced the clinical assessment of the construct in a variety of forensic contexts including risk assessment, parole decision-making, civil commitment of sexually violent predators, and restricting treatment (Hare, 1998b; Harris, Rice, & Quinsey, 1998).

Psychopathy is typically construed as a relatively stable personality disposition (see Hart & Hare, 1997). Research on adult psychopaths cannot be simply extrapolated to children and adolescents. The construct must be evaluated from a measurement

perspective and understood in relation to the existing etiological models and classification framework for childhood antisocial behavior. When these two criteria have been met, the question of how psychopathy will assist in the accurate identification of juvenile offenders can be addressed.

The primary purpose of this dissertation was the investigation of construct validity of the adult two-factor model utilizing multiple measures of the psychopathy construct. In addition, the predictive validity of the two-factor model was examined to advance our understanding of the relationship between psychopathy dimensions and two contexts directly relevant to adolescent offending, namely progress through a secure treatment program and community supervision. This section reviews the evidence regarding the construct validity of the two-factor model and suggests that the two dimensions are identifiable; however, the interrelatedness of personality and behavioral dimensions suggest little differentiation with relatively similar interpretations of the two dimensions.

The Downward Extension of the Two-Factor Model to Adolescents

The downward extension of adult two-factor model to adolescent populations assumes similar expression of psychopathic traits both within and across personality and behavioral dimensions. This assumption suggests that personality characteristics representative of adult psychopaths can also be identified in adolescents. In addition, the downward extension postulates that personality characteristics will demonstrate a strong association to behavioral indicators of a chronic, impulsive antisocial lifestyle. The second-generation psychopathy measures have relied on the two-factor model in their

construction. These measures must be examined on multiple levels (i.e., scale and item) in order to assess the applicability of the adult two-factor model to adolescents.

Two studies have evaluated the two-factor model in adolescents with promising results. Utilizing confirmatory factor analysis, Brandt et al. (1997) reported that the modified PCL-R (Forth et al., 1990) produced a moderate fit index (.83) for the two-factor model. Regarding the development of the PCL:YV, Forth and Burke (1998) concluded that a principal components analysis with an oblique rotation supported the two-factor adult model. Rather than focusing on construct validity, these studies investigated criterion-related validity, evaluating the association between psychopathy factors and relevant external correlates.

Construct validation is an ongoing process that must be continually investigated across multiple settings (Nunnally & Bernstein, 1994). In line with the main hypotheses, the multitrait-multimethod matrix was utilized to assess the construct validity of the second-generation psychopathy measures on the scale level. The MTMM incorporates both reliability and validity in evaluating construct validity. In their seminal article, Campbell and Fiske (1959) viewed reliability and validity as points along a continuum noting that both involve various degrees of agreement across measures. As outlined by Nunnally and Bernstein (1994) four aspects of construct validation are addressed using the Campbell and Fiske methodology. First, convergent validation is represented when two independent methods of inferring an attribute lead to similar results. Second, in order to justify novel measures of a particular attribute, the measure should have discriminant validity as evidenced by low correlations between dissimilar traits. Third, construct validation demands that trait correlations be high to reflect convergent validity

and that method correlations be relatively low to reflect discriminant validity. Fourth, reliabilities should have the highest values in the matrix while correlations between different traits and different methods (heterotrait-heteromethod) should be the lowest. However, correlations between different traits and different methods are not presumed to be zero due to shared method variance.

In general, Campbell and Fiske's fourth key point regarding internal consistency reliability was not met in the current study with reliability fluctuating across the psychopathy measures. Internal consistency, which refers to the average correlation among items within a test, is necessary but not sufficient for construct validity. When internal consistency is low, the scale is either too short or the items which comprise the scale do not measure the same construct. Poor internal consistency suggests unreliable measures in which two possibilities must be explored: (a) the trait does not exist in a consistent manner or (b) the presence of inconsistency among raters. If the domain of content is easily specified and has consensus based upon theory, then alpha-coefficients provide an excellent estimate of reliability (Nunnally & Bernstein, 1994). However, the poor reliability of some of the Factor 1 and Factor 2 scales in the present study suggest multiple possibilities including: (a) relatively few number of items resulting in poor sampling of the construct domain, (b) inconsistency in adolescent self-report regarding personality dimensions prototypical of psychopathy, and (c) inapplicability of the traits (i.e., Factor 1 and Factor 2) in current sample.

Reliability involves measuring consistency among individual items (e.g., internal consistency), across raters (e.g., inter-rater reliability), and across time (e.g., test-retest reliability). Temporal stability is a more complex psychometric property that involves

both test-retest reliability and predictive validity in demonstrating consistency in measurement and chronicity of the diagnoses (see Rogers, 1995). In addition to poor internal consistency, the temporal stability of the measures has yet to be investigated. This is a significant limitation to all measures of psychopathy. Without data regarding temporal stability, researchers cannot conclude that psychopathic features are stable from childhood to adulthood, or that the measures can reliably assess psychopathic features over significant time periods. As another indicator of reproducibility, test-retest reliability involves the re-administration of measures across a specified time interval. For the measures utilized in the present study, no estimates of test-retest reliability have been reported. When utilizing the same form, test-retest reliability can produce spurious high correlations depending on the amount of time between test administrations and memory for previous responses.

When a test or subscale of a test is constructed to measure a single dimension high internal consistency is expected. Low internal consistency may have a detrimental impact on other estimates of reliability and subsequently the construct validity of the measure. Given the poor internal consistency of multiple measures used in the present study, estimates of temporal stability may be artificially low due to heterogeneity of the constructs being measured. However, without estimates of temporal stability, it cannot be assumed that the personality and behavioral dimensions of psychopathy represent stable patterns from adolescence into adulthood. Adolescence is a time of developmental change on multiple levels (physical, emotional, social). During this time, some juveniles engage in a high frequency of delinquent behavior that is considered normative and transient. For example Moffit makes an important distinction between "life-course

persistent" and "adolescent-limited" antisocial behavior. Demonstration of the stability of the traits as reflected in consistent scores on the second-generation measures is critical in order to provide further validation of the two-factor model.

The lack of convergence found in the present study provides mixed results for the construct validity of the two-factor model. As investigated via the MTMM, results suggest only minimum acceptable levels of convergent validity for Factor 1 and Factor 2. This result indicates that the second-generation psychopathy measures are likely to produce disparate results regarding the measurement of Factor 1 and Factor 2. Results of discriminant validity varied depending on the type of discriminant validity examined. Heterotrait-monomethod correlations were consistently high and produced an unacceptable level of comparison violations which is indicative of low discriminant validity. However, this result was somewhat expected as similar correlations between Factor 1 and 2 have been found in the adult literature with the PCL-R and PCL:SV (average $\underline{r}$ = .50; Hare et al., 1990). The range of heterotrait-monomethod correlations (.28 to .60) suggests that different assessment methods (self-report versus interview) demonstrate varying levels of covariation between the personality and behavioral dimensions of psychopathy.

The range of heterotrait-hetermomethod correlations ($\underline{r}$s from .12 to .61) suggests that common variance specific to the traits is diminished by shared method variance. When an MTMM does not support evidence of construct validity, a number of alternative hypotheses must be considered: (a) the assessment methods are not adequate for measuring the construct of interest, (b) one or two of the methods do not adequately measure the construct, and (c) the trait is not a functional unit with the scales being

overly influenced by method variance. Rather than suggesting a departure from the traditional two-factor model, the current results are better understood by a careful examination of the psychometric limitations of the measures and the pattern of relationships across the measures.

Beginning with the PCL:YV, consistent levels of convergent validity were found for Factor 1 and Factor 2. Reliabilities for the PCL:YV was moderate to high for Factor 1 and 2 and represented the highest level of reliability out of the four second-generation measures. However, the major limitation of the PCL:YV is the intercorrelation between its two factors ($\underline{r}$ = .60), which is the highest heterotrait-monomethod correlation out of the four measures utilized in the study. In addition, PCL:YV Factor 2 correlations with other Factor 1 measures (average $\underline{r}$ = .34) is higher than convergent validity for PCL:YV Factor 2.

The PSD resulted in the highest level of convergent validity with other Factor 1 measures while also evidencing a moderate heterotrait-monomethod correlation. However, discriminant validity coefficients representing near-neighbor comparisons exceeded convergent validity for the PSD indicating that the C/U scale demonstrates higher correlations with Factor 2 scales than Factor 1 scales. Despite demonstrating high convergent validity, the CU scale has an unacceptable alpha indicative of low internal consistency. This result is likely attributable to the low number of items comprising the scale (6 items). The I/CP scale shows low levels of convergent validity with other Factor 2 measures. A plausible explanation is that the I/CP scale has relatively few items compared to other Factor 2 scales. In general, a crucial characteristic of Factor 2 is both frequency and severity of antisocial acts. The limited number of items and restricted

rating range (0 to 2) is likely to affect the I/CP's ability to capture this information similar to other Factor 2 scales which stress both frequency and severity or utilize an expanded Likert-type rating scale.

The SRP-II produced an acceptable level of convergent validity for Factor 2 with a similar pattern of results regarding near neighbor comparison as evidenced by the CU scale. Namely, the scale produced higher correlations with other Factor 1 measures than between convergent measures. A rather unexpected result was found regarding the SRP-II Factor 1 scale. Across both measures of anxiety and depression, the SRP-II Factor 1 scale produced significant negative correlations ranging from -.34 to -.61. This result could have theoretical implications that relate back to Cleckley's original conception of psychopathy as including an absence of nervousness and psychoneurotic manifestations (see Newman, 1998). The absence of anxiety is a conceptually important characteristic that is not directly addressed by Hare's operationalization of psychopathy in the PCL/PCL-R (Rogers, 1995). This analysis demonstrates the plausible relationship to absence of anxiety symptoms but also provides an explanation for the absence of strong correlations with other Factor 1 measures. The SRP-II Factor 1 scale does not address other Factor 1 characteristics such as: superficial charm, lack of remorse or guilt, lack of empathy, glibness, and failure to accept responsibility.

The validation of the SALE is in progress. The inclusion of the measure in the MTMM reflected promising results found with adult female psychopathic offenders and the rational relationship between experimental scales on the SALE and psychopathy factors (Rogers & Sewell, 1994). However, results regarding construct validity were minimal at best. Reliabilities for the SALE subscales were low. The SALE subscales

evidenced moderate intercorrelations and low correlations with other psychopathy measures (see Table 4). The inclusion of the SALE scales diminished evidence of convergent validity for both Factor 1 and Factor 2 (see Table 5). While removal of the SALE increased convergent validity of the remaining psychopathy measures it also increased the average heterotrait-heteromethod correlations among the measures (see Table 6). A visual examination of individual correlations suggests that the SALE subscales correlates higher with other self-report measures of psychopathy than the PCL:YV. In addition, correlations generally were higher for behavioral dimensions than personality dimensions suggesting that the measure may hold promise for tapping delinquent behavior and/or general conduct problems in adolescents.

To summarize, the results of the MTMM can best be understood in terms of both the psychometric limitations and conceptual strengths and weaknesses of each measures. Table 31 represents a qualitative review of the measures utilized in the current study and each measures relative levels of construct validity. Self-report measures (PSD, SRP-II, and SALE) consistently produced poor reliability estimates and higher discriminant validity coefficients indicative of method variance. Despite lower average heterotrait-monomethod correlations, the self-report measures produced higher levels of heterotrait-heteromethod correlations suggesting method variance is moderating evidence of construct validity. The PCL:YV is the only measure in the study that meets moderate standards of reliability and seems less affected by method variance as evidenced by lower average heterotrait-heteromethod correlations. Low convergent validity and relation between Factor 1 and Factor 2 scales across the measures resulted in the lack of differentiation between Factor 1 and Factor 2 in the exploratory factor analyses.

Table 31

Qualitative Evaluation of the Construct Validity of the Psychopathy Measures

Measure	Convergent Validity	Discriminant Validity		
		D_1	D_2	D_3
PCL:YV	+	-	+	+
PSD	=	=	=	=
SRP-II	=	=	-	-
SALE	-	-	=	=

Note. Convergent validity = monotrait-heteromethod correlations; D_1 = heterotrait-monomethod correlations; D_2 = heterotrait-heteromethod correlations among psychopathy measures (near-neighbor comparisons); D_3 = average heterotrait-heteromethod correlations involving measures of depression and anxiety (distant-neighbor comparisons); + (superior or strong); = (comparable to other measures); - (weak or poor).

Measurement of Factor 1 and Factor 2 traits in adolescence will be influenced by the scales utilized in a given study. Without consistency in measurement, generalization of results across studies and advancement of etiological models of adolescent psychopathy will be hindered. For example, Frick's (1998b) developmental trajectories emphasized two key points: (a) CU traits delineate a distinct causal pathway that is associated with behavioral inhibition, and (b) CU traits must be at least partially separated from poor impulse control and conduct problems. In order to study the CU developmental trajectory, CU traits must be examined controlling for poor impulse control and conduct behavior problems. Thus, in order to advance Frick's etiological theory, we must be able to reliably and validly distinguish the interpersonal and affective

dimensions associated with Factor 1 from the impulsive and antisocial behavior associated with Factor 2.

Evidence for the two-factor model reviewed thus far has focused on the scale level. In general, the use of scale scores that are based on heterogeneous items can contribute to low convergence. However, the form of the item (scaling procedure) and method (interview versus self-report) can also influence the reliability and validity of a scale. In the MTMM, method variance is indicated by the correlation differences between heterotrait-monomethod and heterotrait-heteromethod correlations for a given trait. In the current study, method variances appeared to be particularly problematic for the self-report measures in the study.

The MTMM allows for multiple methods to be compared at the same time and the proportion of method variance can be estimated by a comparison of the magnitude of heterotrait-monomethod and heterotrait-heteromethod correlations between the different methods. When method variance is present, it is unclear what proportion of variance is method variance or shared variance attributable to an underlying construct. One way to address method variance is through confirmatory factor analysis which constitutes a strict test of the underlying factor structure among a set of observed variables because only the common variance among a set of observed variables is used to represent the latent construct. Although the MTMM can identify patterns of correlations representing method variance, unique/error variance associated with the observed variables is partialled out using CFA.

Poor internal consistency and method variance among the self-report measures limited evidence for convergent validity and ultimately the construct validity of the two-

factor model. Results of the MTMM suggest that the PCL:YV is psychometrically superior and less affected by method variance at the scale level. Based upon these findings, the PCL:YV was utilized to further test the two-factor model of psychopathy via CFA. The CFA results in the present study provide support for the two-factor model. Based upon the fit indices, both the two- and three-factor models demonstrate adequate fit. Hare (1991) described psychopathy as a relatively homogeneous construct with two separate yet correlated dimensions based upon the factor analytic studies of the PCL and PCL-R. In the present study the three-factor model accounting for two separate dimensions subsumed within one higher order construct is the most parsimonious explanation with the adult literature. However, an examination of the factor structure suggests different interpretations of the two factors compared to the adult model. In the following paragraphs, both factors are reviewed comparing the adult conceptualization found in the PCL and PCL-R to the current data (see Table 32). Modifications to factor interpretation are suggested based on the extant literature of the second-generation psychopathy measures and the current data.

Factor 1

The ongoing investigation of Factor 1 in the adult literature has suggested variations on the relative importance for individual items. The factor structure of the PCL and PCL-R indicate that egocentricity, grandiose sense of self-worth, glibness, and superficial charm have produced consistent and strong factor loadings. Researchers have concluded that these items are highly representative of the personality dimensions of adult psychopaths (Hare et al., 1990; Harpur, Hakstian, & Hare, 1988; Harpur, Hare & Hakstian, 1989). Based on a re-examination of Hare (1991), Rogers and Bagby (1994)

Table 32

Factor Loadings for the Two-Factor Model Across the PCL, PCL-R, and PCL:YV

Factor and Item	PCL Harpur et al. 1988	PCL-R Hare 1991	PCL:YV Current Data
Factor 1			
Glibness/Superficial Charm	.71	.86	.57
Grandiose Sense of Self-Worth	.76	.76	.64
Pathological Lying	.51	.62	.46
Conning/Manipulative	.65	.59	.71
Lack of Remorse/Guilt	.56	.53	.61
Shallow Affect	.51	.57	.48
Callous/Lack of Empathy	.48	.53	.76
Failure to Accept Responsibility	.56	.47	.48
M for Factor 1	.59	.62	.59
Factor 2			
Need for Stimulation	.76	.56	.43
Parasitic Lifestyle	.62	.56	N/A
Poor Behavior Controls	.42	.44	.71
Early Behavior Problems	.47	.56	.34[a]
Lack of Realistic Goals	.61	.56	--
Impulsivity	.68	.66	.46
Irresponsibility	.38	.51	.52
Juvenile Delinquency	.47	.59	.36[a]
Revocation of Conditional Release	.53	.44	.57
M for Factor 1	.55	.54	.42

Note. Item descriptors from the PCL-R (Hare et al., 1991) were utilized. Items which are included in the total scores (Promiscuous Sexual Behavior, Criminal Versatility, Short-Term Marital Relationships – PCL-R/Unstable Interpersonal Relationship – PCL:YV) are not included. N/A = Item not included in the factor structure.
[a] Item is crossloaded onto Factor 1.

stressed the importance of both glibness and grandiosity as interpersonal characteristics most representative of Factor 1. Examination of the PCL:SV via both exploratory and

confirmatory factor analysis suggested that self-centered justifications of antisocial attitudes and lack of genuine emotions characterized Factor 1 (Rogers et al., 2000).

Contrary to the results found for the adult Factor 1, the PCL:YV data in the current study indicate that callousness, lack of empathy, conning/manipulation are more representative of this dimension. This finding is consistent with the validation study (Frick et al., 1994) of the PSD in that items relating to lack of remorse and callousness are most representative of the CU scale. Specifically, these items are comprised of "Doesn't Feel Guilty or Bad," "Shallow Emotions," and "Doesn't Show Emotions." Based on these results, Factor 1 could best be described as insincere emotions and inability to recognize harmful effects of one's behavior. This conceptualization appears more consistent with Rogers et al. (2000) interpretation of the PCL:SV Factor 1 than the interpretation for the PCL-R. There is one noted exception in that Rogers et al. suggested that subcriteria related to deception (e.g., "manipulates without concern for others," "distorts the truth," "deceives with self-assurance") be moved to Factor 2. In contrast, the current study found that manipulativeness was one of the stronger indicators of Factor 1 in adolescents.

As applied to the adult psychopath, grandiosity is related to being self-assured and opinionated regarding their own self-worth and their own abilities. Although still high, grandiosity appers less representative of PCL:YV Factor 1 than items relating to callousness, lack of empathy, and conning/manipulation. The relative importance of this item to the construct of psychopathy may be linked to developmental factors. Adolescents perceived self-worth is more likely to be based on their activities and behaviors rather than a personality characteristic. In addition, research has shown that

inflated self-worth is also a significant correlate of aggression in children (see Baumeister, Smart, & Boden, 1996). Frick, et al. (1994b) found similar results on the PSD. Items related to grandiosity ("Brags about Accomplishments" and "Thinks He/She is More Important than Others") are highly representative of the I/CP scale over items relating to impulsivity and conduct problems contrary to the adult model. This finding suggests that grandiosity as a psychopathic indicator may be more linked to behavioral dimensions in adolescents.

These results are based on the relative strength of factor loadings reported in the literature and from the current study. However, results from the PCL:YV CFA also indicate that items which are traditionally associated with Factor 2 in the adult literature may be equally associated with Factor 1 in adolescents. The crossloading of two items on both Factor 1 and 2 suggests that the onset of severe behavior problems (below age 10) and serious juvenile delinquency (i.e., frequency and severity of antisocial acts) may be associated with personality characteristics traditionally viewed as Factor 1. Another possibility is that the two items are representative of a larger issue of lack of differentiation between the two dimensions in adolescent offenders.

These results are intriguing and provide evidence that is consistent with classification of childhood antisocial behavior and etiological theories of the development of psychopathic traits in children. Current classifications and etiological theories indicate age of onset and severity of antisocial acts are associated with persistence of antisocial behavior. A closer examination of item descriptions and scoring criteria is warranted to establish the relationship between the current factors and the traditional models.

PCL:YV Item 10 (Early Behavior Problems) describes an adolescents who had a history of serious behavioral problems prior to age 10. This item incorporates externalizing behaviors (e.g., persistent lying, cheating, theft, robbery, truancy, substance abuse, runaways, school suspensions and expulsions). The item description reflect the DSM-IV diagnostic criteria for ODD and/or CD. The inclusion of an age 10 demarcation is also consistent with the DSM-IV age of onset subtyping which reflects Moffit's (1993) distinction between "life-course persistent and "adolescence-limited" delinquency groups.

Item 18 (Juvenile Delinquency) refers to the adolescent having a history of serious criminal behavior as evidenced by involvement in two or more violent crimes (e.g., murder, assault, robbery) or 10 or more serious crimes (e.g., weapons offenses, auto theft, breaking and entering, selling drugs). This PCL:YV item captures both severity and frequency of serious conduct problems. Previous research has shown that total psychopathy scores are positively correlated with previous reported violent offenses, charges or convictions for violent offenses, and acts of institutional aggression (Brandt et al., 1997; Forth et al., 1990; Rogers et al., 1997). In combination, these two items account for early onset, escalation, and persistence of severe antisocial behavior from early childhood into adolescence. Research has shown that early onset and persistence are associated with continued antisocial behavior into adulthood (Lahey et al. 1995; Loeber, 1982: Loeber, 1991; Patterson, 1982).

The crossloading of the two items with Factor 1 suggest that early onset of serious delinquency and frequency of antisocial acts may be indicators of the development of personality characteristics traditionally viewed as Factor 1. Although consistent with

classification models, this interpretation suggests a further departure from the adult two-factor model. Due to the conception of psychopathy as being a stable construct, the influence of behavioral indicators may be misconstrued as representing an inflexible and persistent personality style. Although the two-factor model achieved adequate fit based upon crossloading the two items, the presence of this behavioral pattern should not be assumed to represent stable, co-occurring psychopathic personality features due to the noted instability of conduct problems in children and adolescents. Previous research has demonstrated yearly fluctuations in CD diagnoses among young males (Lahey et al., 1995). Longitudinal data supporting Moffit's life-course persistence group has been criticized for the inability to explain why a subgroup of the life-course persistent group showed early onset and desistance by adolescence (Silverthorn & Frick, 1998).

Factor 2

In adult offenders, psychopathic behavioral characteristics include irresponsibility, impulsivity, and behavior that violates social norms. An examination of the factor structure of the PCL and PCL-R indicate that Factor 2 is weighted much more heavily with items related to impulsivity, criminality, and unstable socially deviant lifestyle. Similar to Factor 1, Rogers and Bagby (1994) have suggested that descriptions of Factor 2 have not relied on factor loadings and stressed that impulsivity and sensation-seeking were most representative of Factor 2. Regarding the PCL:SV, Rogers et al. (2000) suggested that unmodulated expression of anger, deception, and unstable relationships were most representative of the behavioral dimension of psychopathy.

Regarding Factor 2 in children and adolescence, the PSD validation study produced an interesting and often overlooked result. In the factor analysis, the I/CP

factor was the first extracted factor accounting for the most variance. This result suggests that personality components traditionally viewed as Factor 1 were de-emphasized. As previously noted, items relating to grandiosity were most representative of the I/CP factor. Items relating to impulsivity (acts with thinking), sensation-seeking (engages in risky or dangerous activities) and conduct problems (engages in illegal activities) also produced high factor loadings.

Current CFA results for Factor 2 appear more consistent with Factor 2 results found in the adult literature. Items relating to poor anger controls, irresponsibility, and impulsivity are highly representative of this factor. The consistency across the adult and adolescent factor structures suggest impulsivity and reckless behavior and not criminal behavior per se are most representative of this dimension. In their examination of biological correlates of conduct disorder, McBurnett and Pfiffner (1998) noted that ODD/CD and ADHD symptoms can be mapped onto PCL-R items and are more similar to Factor 2 items. The comorbidity literature supports this linkage of CD and ADHD with the proportion of comorbidity ranging from approximately 65% to 95% (see Abikoff & Klein, 1992) and most represented among the ADHD-Combined subtype (see Eiraldi, Power, & Nezu; 1996).

The high rate of comorbidity is incorporated into the etiological models of Frick (1998b) and Lynam (1996). Frick's alternative conduct problems pathway stresses that impulsive conduct problems are the result of overactivity of the behavioral activation system or the temperamental dimension of poor effortful control of behavior. Frick posited that children with this neuropsychological vulnerability may be susceptible to environmental influences, such as poor parental socialization, which increases the risk for

severe conduct problems. Items representative of Factor 2 account for both dimensions (HIA and CP) stressed by Lynam. Lynam's construct of "psychopathic constraint" and Frick's CU developmental pathway both rely on the information processing model of Newman and Wallace (1993). Both researchers theorize that the inability to incorporate environmental feedback and modulate responses represents a trait in a subgroup of children who develop into psychopathic adults.

Despite consistency in factor structure between the adult and adolescent versions, a complication with Factor 2 is the inclusion of items relating to disrupted relationships, most notably, parasitic lifestyle. This item reflects a persistent behavioral pattern in which others are used to meet the individual's needs and avoidance of responsibilities such as: reliance on family/friends for cash, place to live, or food. Two examples are: (a) money given for one purpose and used for another, and (b) use of parent's credit cards without permission. This item was problematic in the current study in that no participant was scored higher than a "1" on the item. In adults, an unstable work history and manipulation of interpersonal relationships for material and financial gain are primary sources of information. It is questionable why this item was included in the PCL:YV because reliance on family support is often a normal part of adolescent life. It is understandable why reliance on family was excluded from scoring criteria except in rare circumstances (e.g., unauthorized use of parent credit cards). However, this exclusion leaves few avenues of social and interpersonal interactions in which a "persistent pattern of behavior" can be investigated. Most offenders in the current study resided with families and relied on their families for financial support. Once occupational behavior is initiated, this item can be explored; however, this does not consistently apply to

adolescents and is highly dependent on age. Further empirical investigation of this item is warranted. It is possible that the inapplicability of the item is sample dependent. However, a work history and/or verbal report of interpersonal relationships outside the family could be considered as threshold criteria in order to score the item.

Predictive Validity of the Two Factor Model

Predictive validity refers to the functional relation between a predictor and criterion event occurring before, during, and after the predictor is applied (Nunnally & Bernsterin, 1994). In general, predictive validity is a critical aspect of test validation when the test is utilized in decision-making regarding the individual being evaluated. In considering application of the second-generation measures, construct validity should be augmented by an examination of predictive validity.

As mentioned in the Introduction, psychopathy is considered one of the most important psychological constructs in the criminal justice system (Hare, 1996; 1998a). Clinical information from psychopathy measures are utilized in informing legal decision makers about risk for future antisocial acts (see Hemphill et al., in press; Hemphill et al., 1998; Salekin et al., 1996) limiting access to treatment (Losel, 1998), and justifying longer sentences such as extended incarcerations (Hart, 1998). With regards to adolescent psychopathy, the criminalization of the juvenile justice system (see Bourque et al., 1996) has seen a dramatic increase in punitive sanctions including longer incarceration and the transfer of juveniles into the adult criminal justice system (Melton, Petrila, Poythress, & Slobogin, 1997; Parent, Dunworth, McDonald, & Rhodes, 1997). The increase in punitive sanctions and transfer of juveniles into the adult court system have increased the need for measures which have predictive utility regarding increased

risk for criminal recidivism and poor response to intervention among adolescent populations.

The adult two-factor model has consistently shown that the two dimensions are correlated (see Hart & Hare, 1997) and that Factor 1 and Factor 2 have differential patterns of predictive validity depending on the outcome measure (e.g., general versus violent recidivism) utilized and the sample studied (e.g., incarcerated male offenders, female offenders, and forensic-psychiatric offenders). For example, in their meta-analytic review, Salekin et al. noted that Factor 1 items generally have low correlations with future criminal behavior (< .20) compared to Factor 2 items (> .30). Based on this result, the authors concluded that future risk may depend on the relative contributions of Factor 1 and Factor 2 in adults but that greater emphasis is likely placed on Factor 2. Different conclusions were reached by Hemphill et al. (1998). The researchers concluded that Factor 2 was more strongly associated with general recidivism; however, both Factor 1 and Factor 2 were important predictors of violent recidivism.

In summary, the adult literature stresses the importance of both Factor 1 and Factor 2 on measures of recidivism. Forth and Burke (1998) reported data regarding differential correlates for Factor 1 and Factor 2 in adolescents have revealed the following. First, Factor 2 produced similar correlations (.38 versus .35) to Factor 1 with the number of violent offenses. For nonviolent offenses, Factor 1 produced a slightly higher correlation (.73 versus .60). Age of onset for nonviolent offenses produced a higher negative correlation with Factor 2 ($\underline{r}$ = -.45) than Factor 1 ($\underline{r}$ = -.30). These results partially mirror the conclusions reached by Salekin et al. that Factor 2 is likely to show stronger associations with recidivism than Factor 1.

Predictive validity data from the present study suggest that Factor 2 accounts for the majority of the variance in the prediction of total institutional infractions and room seclusions. In addition, Factor 2 also predicted new detentions for adolescents who were released from detention and under community supervision. Although significant predictive models were obtained, the amount of variance accounted for within each model was low (9 to 15%). These results suggest that poor behavioral controls and impulsivity as opposed to affective/interpersonal dimensions have greater predictive utility. Factor 1 consistently showed little relationship to the external criteria. Methodological limitations should be considered as possible contributors to the predictive validity results. More specifically, the time period for which both institutional infractions and community supervision violations were measured is relatively brief (3 months). Factor 2 demonstrated predictive validity for new detentions which is quite promising considering the short time frame involved. Considering the relative importance of psychopathy in predicting recidivism, this finding warrants further empirical investigation. The number of new detentions and types of offenses leading to new detentions must also be investigated over longer time periods. The data here should not be construed as no predictive utility of Factor 1 on this important variable. As found in the adult literature, distinguishing type of offense (violent versus nonviolent) may be a critical issue in investigating the incremental validity of Factor 1 and Factor 2.

Summary

The factor interpretation of the adolescent two-factor model suggests that adolescents do not manifest psychopathy in a similar pattern as adults. The divergence is highlighted in the interpretation of Factor 1 while Factor 2 remains theoretically

consistent with the adult factor. The crossloading of behavioral items with Factor 1 is consistent with classification and etiological models in that age of onset, frequency, and severity of antisocial behavior are all factors associated with persistence of antisocial behavior from childhood to adulthood. However, caution is warranted in misconstruing the crossloading as representative of a stable personality pattern distinct from behavioral disturbance. The absence of Factor 1 in the prediction of external criteria provides further evidence for the limited utility of two-factor model. The next section addresses methodological factors which likely impacted the current findings.

Methodological Factors:

The psychometric properties of each psychopathy measure varied considerably in the study with no measure being without limitations regarding construct validity. The theoretical discussion, indicating a stronger overlap between Factor 1 and 2, may have also contributed to the psychometric limitations of the measures. As previously mentioned, measures of internal consistency fell below acceptable standards for two of the four measures utilized in the study. Poor psychometric properties were confined to the self-report measures utilized in the study and more problematic for Factor 1 scales than Factor 2. Alphas increased substantially on all psychopathy measures for the total score. Although this finding suggests that both construct and predictive validity might be enhanced by the use of the total scores from the psychopathy measures, the inability to differentiate Factor 1 from Factor 2 will present problems for testing the etiological models currently proposed to account for the development of psychopathic characteristics in childhood and adolescence.

Low internal consistency and higher correlations across measures were shown to be more problematic for self-report measures utilized in the study. This result suggests that paper and pencil measures may not provide an adequate method to evaluate the presence of interpersonal and affective components of psychopathy. The use of self-report measures to assess psychopathy previously has been criticized in the adult literature. For example, Hare (1985) concluded that agreement between interview, clinical data, and self-report measures of psychopathy were generally poor. However, recent development with the Psychopathic Personality Inventory (Lillienfeld & Andrews, 1996) and Levenson's Self-Report Psychopathy Scale (Levenson, Kiehl, & Fitzpatrick, 1995) have shown strong associations between self-report and behavioral indicators of psychopathy in adults and in contexts other than criminal-forensic settings (Lynam, Whiteside, & Jones, 1999).

Another plausible interpretation is that the personality components traditionally associated with Factor 1 may be more fluid in adolescents. Researchers have argued that characteristics of psychopathy may be evident at an early age (Christian et al., 1997; Lynam, 1996). Finding further empirical support for cross-sectional differences on second-generation psychopathy measures in children does not address temporal stability. Researchers supporting the measurement of Factor 1 characteristics in children also acknowlede the developmental psychopathology concept of heterotypica continuity. This concept stresses continuities and discontinuities over the lifespan and variations in the external manifestation of an underlying causal agent at different developmental levels (see Rutter, 1997). Farrington (1997) stressed that continuity and stability are not equivalent concepts. Changing manifestations of a theoretical construct imply that

different operational definitions are needed in terms of measurement. The lack of convergence for Factor 1 measures may reflect rater differences (youth's self-report versus interview-based ratings). However, the data also suggest rather than implying the presence ofmaladaptive personality traits, which are traditionally considered inflexible and persistent, further empirical evidence I needed focusing on stability in measurement and predicted association with developmentally relevant external correlates at different time periods.

The use of multimethod assessment is recommended with children due to the perceived inability of children to provide a consistent account of their own functioning (see Kamphaus & Frick, 1996). As noted by Rogers (1995), children generally produce higher correlations for externalizing than internalizing problems when their self-reports are compared adult informants. This distinction is likely to differentially affect psychopathy measures. Factor 2 measures which appear more like externalizing disorders may produce more consistent results than Factor 1 measures which are similar to internalizing disorders. This distinction is a plausible contributot o method variance found in the current study as adolescent self-reports may vary along the externalizing/internalizing dimension as well as across methods (interview and self-report).

In the context of child and adolescent assessment, the use of multiple informants is also recommended. The use of multiple informants increases the ecological validity of an assessment by gathering information about a child's behavior in multiple contexts. In regard to adolescent psychopathy, the PSD is the only measure with parallel forms for self-report and other adult informants (parent, teacher, probation officer). However, the

use of multiple informants does not always promote consistency across measurement findings. Further compounding this problem is the lack of consensus regarding the reconciliation of disparate ratings across multiple informants. As noted by Frauenglass and Routh (1999) the individual characteristics of observers become filters to information provided about a child that must be considered during the assessment process. Rating scales are prone to "halo effects" in that a particular child can be rated as all good or all bad depending on global impressions of the child being evaluated (Hinshaw & Park, 1999). Thus, informant bias may differentially affect the scales of the PSD exacerbating the limitations of the measure beyond the psychometric problems noted above.

In addition to differing results across measures, the low bae rate of psychopathy may reflect the inapplicability of this construct ot the population utilized in the current study. Utilizing the 75% rule, a base rate of 6.7% was found in the current sample. Logically, the base rate of psychopathy increased with the inclusion of the mixed psychopath group (see Hare & McPherson, 1980). However, this inclusion will limit the generalizability of findings from the current study pertaining to predictive validity (see Salekin et al., 199). The adult cut score must be utilized in order to make a direct comparison between adult and adolescent samples. Higher base rates of psychopathy in adolescents compared to adults might suggest that behavioral indicators and developmentally inappropriate criteria are artificially inflating psychopathy scores which would result in spuriously high base rates.

Adolescent Psychopathy and the Disruptive Behavior Disorders

A broad goal of the psychopathy research in children and adolescens has been to evaluate the utility of the construct in the identification and classification of juvenile

offenders (Frick, 1998b; Frick et al., 1994b; Lynam, 1996). Therefore it is critical to consider the appropriate placement of psychopathy in the existing framework of childhood antisocial behavior. Regarding adult antisocial behavior, the DSM-IV has been criticized for creating confusion regarding the relationship between APD and psychopathy (Hare & Hart, 1995; Hart & Hare, 1997; Widiger & Corbitt, 1995). The two disorders are related but there are also important differences. According to the DSM criteria, approximately 50 to 80% of offenders in forensic settings are diagnosed with APD. Approximately 15 to 30% of the same offenders meet the PCL-R criteria for psychopathy (Hare et al., 1990). Thus, psychopathy and APD demonstrate an assymetrical relationship. Most criminals diagnosed as psychopaths by the PCL-R meet the criteria for APD; however, only a minority of criminals diagnosed with APD meet criteria for psychopathy (Hart & Hare, 1997).

The inclusion of CD as an APD diagnostic criterion suggests that presence of antisocial behavior at an early age leads to persistence of antisocial behavior into adulthood. This premise has considerable empirical support. Numerous studies have shown that childhood antisocial behavior persists into adulthood (Robins, 1978; Rutter, 1997; Zoccolillo, Pickles, Quinton, & Rutter, 1992). Loeber and Farrington (1997) provided a summary of key longitudinal studies on juvenile antisocial behavior. These authors concluded that longitudinal studies show relative stability in antisocial behavior based on the severity of the behavior. More specifically, individuals with higher frequency and severity of antisocial acts at an early age are more likely to continue to exhibit antisocial behavior in adulthood. Delinquent history variables including early age of first arrest, commission of serious crimes, and frequency of arrests were significant

predictors of general recidivism (Cottle, Lee, & Heilbrun, 1999). Also supporting the persistence argument, Hawkins et al. (2000) found that commission of a juvenile offense between ages 6 and 11 was related to commission of a violent offense in adolescence and early adulthood. This section will address how psychopathy fits into the existing diagnostic framework for childhood antisocial behavior and how empirical evidence of adolescent psychopathy may contribute to a greater understanding of the persistence of antisocial behavior into adulthood.

Psychopathy and CD

The relationship between CD and adolescent psychopathy is critical to examine similar to the empirical literature evaluating the relationship between APD and adult psychopathy. A broad criticism of the traditional conceptualization of CD is the heterogeneity in the diagnosis (Clarizo, 1997). As mentioned in the Introduction, the requirement of only 3 of 15 symptoms results in children and adolescents diagnosed with CD with completely non-overlapping symptomatology. In juvenile detention settings, the prevalence rate of CD has been estimated at approximately 80% (Otto et al., 1992; Wierson, Forehand, & Frame, 1992; Cocozza & Skowyra, 2000). This prevalence suggests that the CD diagnosis is a common feature rather than a distinguishing feature within the juvenile justice system.

The widespread prevalence of CD in the juvenile justice system reflects a similar pattern to the APD diagnosis in adult forensic settings. In considering the association with psychopathy, prevalence rates reported by Forth and Burke (1998) indicate that among male juvenile delinquents psychopathy as measured by the PCL:YV was 28.3% for incarcerated settings and 12.0% for probation settings. In the current study, the

prevalence of psychopathy was much lower (6.7% utilizing PCL:YV cut score of 30). In stark contrast, the prevalence of CD was 77.1% in the current sample. Thus, similar to APD and adult psychopathy, CD and adolescent psychopathy demonstrate the same assymetrical relationship.

This assymetrical relationship is highly consistent with the hierarchical model in the traditional classification system for the disruptive behavior disorders (see Lahey & Loeber, 1994). In the hierarchical model, the developmental progression from ODD to CD is described as a process of accretion with the prevalence and progression of ODD to CD representing an assymetrical relationship. At each developmental level (ODD to subsequent levels of CD) some children desist and do not progress to higher levels of antisocial behavior (see Frick, 1998a). Although the prevalence at each level decreases, the hierarchical model indicates that adolescents who progress to severe CD behavior will continue to exhibit less severe CD and ODD behavior. Date from the present study provide evidence consistent with the hierarchical framework. Participants in the mixed/psychopathy group were almost five times as likely (odds ratio = 4.74) more likely to meet diagnostic criteria for both ODD and CD. Adolescent psychopathy is likely to represent the most severe point of the developmental progression within the disruptive behavior disorders. However, as the previous section details, adolescent psychopathy incorporates many of the classificatory and etiological factors representative of the disruptive behavior disorders spectrum. For example, PCL:YV Factor 2 items (early behavior problems, juvenile delinquency) and criminal versatility are operationalized to capture much of the information relevant to the diagnosis of CD including the age of onset subtyping strategy and frequency of antisocial behavior.

The discussion above suggests that Factor 2 and CD, as conceptualized in the DSM-IV, demonstrate a high degree of association. In examining the evolution of the CD diagnosis, earlier versions of the DSM incorporated CD criteria that are similar to Factor 1. The DSM-III (APA, 1980) CD criteria included both overt and covert acts. Examples of covert criteria included an inability to feel guilt or remorse, and failure to establish normal degrees of affection or empathy. Many of the items operationalized in Factor 1 are very similar to the earlier DSM conceptualizations of CD. The re-introduction of these items via the second-generation psychopathy measures can be viewed as an incorporation of previous subtyping attempts. However, the same arguments concerning the lack of reliability and ability to accurately rate items such as "lack of empathy" and "callousness" apply to the PCL:YV as well. Based on the current data, there is a poor convergence for Factor 1 across interview and self-report measures. The ability of self-report measures to provide consistent data with interview measures is highly questionable, given the results of the present study. As validated, the PCL:YV provides a thorough and reliable procedure for the classification of psychopathy in that it is based upon both interview and collateral information. Inter-rater reliabilities for total scores are quite high (average r = .93; Forth & Burke, 1998). Data regarding inter-rater reliability from the current study suggests that both Factor 1 and Factor 2 demonstrate equal levels of reliability. However, reliability at the scale level does not adequately address the issue of reliability at the item level. Inter-rater reliability at the item level would provide valuable information concerning the modified scoring criteria, especially for Factor 1 items. Inter-rater reliability and temporal stability of item scores, are viewed as a true test of the developmental appropriateness of items entailed in Factor 1.

Psychopathy and ODD

The ODD diagnosis represents the base of the hierarchical model of childhood antisocial behavior problems. ODD characteristics have an earlier onset and wider prevalence rate than CD. An interesting result was obtained related to the frequency and diagnosis of ODD in the present study. ODD scales from the DISC-2.3 and ASI-4 demonstrated significant correlations with total psychopathy scores in the present data (average r = .50). Exploratory factor analysis results suggest that ODD is weakly associated with psychopathy and conduct problems. ODD represents the base of the hierarchical model of childhood antisocial problems. However, participants in the mixed/psychopath group were five times as likely to meet ODD diagnostic criteria. This finding provides further evidence of the process of accretion according to the hierarchical model.

ODD is generally viewed as a less severe manifestation of childhood antisocial behavior; however, the current study suggests a significant association with psychopathy. Therefore, it is important to ascertain the relationship between ODD criteria and psychopathy in relation to the other disruptive behavior disorders. As previously mentioned, a combination of CD and ADHD symptoms appear to account for a majority of the Factor 2 criteria as currently conceptualized. However, ODD diagnostic criteria are more consistent with Factor 1. For example, criteria related to affective instability (often loses temper, touchy and easily annoyed, angry and spiteful) and hostile attitude toward others (often argues with adults, deliberately annoys others, defies others) are developmentally closer to Factor 1 items such as conning/manipulative, callous/lack of empathy, and pathological lying.

Psychopathy and ADHD

Research reviewed in the Introduction indicates that childhood ADHD has been linked to antisocial behavior in at least three ways. First, children with ADHD are more likely to exhibit antisocial behavior during adolescence and adulthood (Lahey & Loeber, 1994; Loney, Kramer, & Milich, 1981; Lynam, 1997). Second, children with concurrent CD and ADHD demonstrate a higher level of persistence and more severe behavioral outcomes than do either pure CD or ADHD groups (Loeber, 1988; Lynam, 1996; Magnusson & Bergman, 1990). Third, ADHD is associated with the early onset of antisocial behavior (Caron & Rutter, 1991).

Lahey and Loeber (1997) concluded that ADHD and CD co-occur during childhood at statistically significant levels. However, the degree of co-occurrence varies as a function of the child's age. Evidence suggests that the greatest co-occurrence of the two disorders occurs in prepubertal children. In addition, the prevalence rates may also increase due to the extended risk period for the onset of CD (childhood through adolescence) and the fact that the two disorders co-occurring produce higher rates of persistence than either disorder alone. The available evidence (Loeber et al., 1994; Loney et al., 1981; Mannuzza & Klein, 1999) indicates that ADHD is a weak to moderate predictor of adolescent-onset CD. In addition, Lynam (1996) has proposed that the HIA-CP link is a developmental basis for psychopathy in children. External correlates of males in the HIA-CP group included: higher arrests rates, more court appearances, and higher rates of aggression. As outlined in the Introduction, deficits in information processing and disinhibition are key neuropsychological deficits that Lynam proposed are

present in the HIA-CP group, predisposing young children for the development of psychopathic traits.

Results of the present study suggest that psychopathy shows a stronger relationship to CD and ODD than ADHD as measured by the DISC-2.3 and ASI-4. Across the psychopathy measures, evidence was found for the hypothesized relation between Factor 2 and psychopathy using self-report measures. This data is consistent with the CFA factor interpretation stressing impulsivity as a strong indicator of Factor 2. However, correlations between the PCL:YV and ADHD scales did not produce similar results suggesting that method variance may be influencing results found for the self-report measures.

Data at the diagnostic level indicated no significant differences between frequency of ADHD diagnoses (Hyperactive, Inattentive, and Combined) and psychopathy groups. Results of the factor analysis utilizing psychopathy total scores and childhood disorders provide further indication that attentional problems are distinct from psychopathy. The lack of diagnostic differences between the psychopathy groups suggests that ADHD may not be a distinguishing feature of adolescent psychopathy. The results suggesting little relationship between adolescent psychopathy and ADHD may be related to the age range of the present sample and the restricted time frame for the evaluation of ADHD symptoms. ADHD subtypes were established using the DISC-2.3 which only evaluates the presence of symptoms within the past 6 months. The limited time frame does not preclude the possibility of an earlier childhood diagnosis of attentional problems. Similar to fluctuating patterns of persistence for CD, research has

shown that half of children diagnosed with childhood ADHD did not continue to meet criteria into adolescence (Mannuzza et al., 1991; Mannuzza & Klein, 1999).

Another possibility is that the operationalization of impulsivity and need for stimulation, which have been shown to be highly representative of Factor 2 in adolescence, varies from the DSM diagnostic criteria for the hyperactive/impulsive subtype of ADHD. Thus, it is plausible that the focus on diagnostic distinctions may overlook important variables. Research has suggested that impulsivity and sensation seeking opposed to ADHD per se account for more variance in the prediction of adolescent psychopathy (Vitacco & Rogers, 2000).

Finding no evidence for a diagnostic distinction between psychopathic groups on atttentional subtypes does not preclude the possibility that early attentional problems are etiologically related to the development of severe conduct problems. Lynam (1996) proposed that the construct of "psychopathic constraint" as a deficit in information processing found in a small subgroup of young males and adult psychopaths. Lynam stated that this link is "implicit, indirect, and extrapolated from cross-sectional studies." Furthermore, Lynam stated that this deficit is likely to result in different manifestations at different developmental levels. Prospective studies investigating the neuropsychological deficit in information processing is lacking but will assist in addressing what key aspects of attentional problems are most related to the development of psychopathy.

Summary

Similar to the assymetrical relationship between APD and psychopathy in adult offenders, evidence from the present study suggests a similar pattern between CD and adolescent psychopathy. Within a developmental framework, adolescent psychopathy

appears to incorporate both ODD and CD diagnostic criteria and may provide a way to conceptualize and assess the various subtyping strategies that have been utilized in previous versions of the DSM as well as the current DSM-IV. Most notably, frequency, severity, and age of onset are all addressed and appear most consistent with Factor 2. Examination of diagnostic data provide further evidence of the hierarchical model of childhood antisocial behavior and supports the developmental process of accretion. Adolescents who exhibit high levels of psychopathy as measured by the PCL:YV were more likely to continue to meet criteria for both CD and ODD. Further empirical data is needed in order to assess whether psychopathy may add to the data regarding persistence. However, as conceptualized based upon the current diagnostic data, moderate to high psychopathy is consistent with a higher frequency of disruptive disorder symptomatology which has been found to be a consistent correlate of persistence.

Limitations of the Current Study

This study represents one of the first attempts to address the construct validity of the two-factor model of psychopathy using a multiple indicators approach. In adults the construct of psychopathy is conceptualized as a homogenous construct with two separate but related dimensions. A similar degree of association between the two dimensions were found in the current study and represented one obstacle to finding evidence of convergent validity. As previously mentioned, the overall base rate of psychopathy also limited results regarding predictive validity. Beyond the statistical limitations, additional caveats warrant further discussion.

Regarding the assessment measures, this study relied on both interview and self-report assessment methods for diagnostic data (DISC-2.3 and ASI-4) and psychopathy

(PCL:YV, PSD, SRP-II). Access to the county juvenile justice computer system served as consistent and reliable source of information concerning juvenile justice contacts, placements, and probation information. Thus, adequate interview and file information were available to score the PCL:YV according to standard administration procedures (Forth, Kosson, & Hare, 1994). The setting of the study precluded gathering collateral information from adults familiar with the participants such as parents or teachers. The necessity of multiple informants is crucial in the assessment of child psychopathology (Frauenglass & Roth, 1999; Grisso, 1998; Kamphaus & Frick, 1996; Rogers, 1995). This issue is critical in establishing age of onset criteria for ODD and CD symptomatology. Age of onset is a critical indicator for individual item ratings on the PCL:YV, DSM classification, and placement on developmental trajectories. Results concerning age of onset in the present study are limited in their sole reliance on the participant's self-report.

The methodology of the study guaranteed confidentiality of the information provided by the participants. Arguably, this promotes the accuracy of the participants self-report of antisocial activity, criminal behavior unknown to the juvenile justice system, and substance abuse. However, the protection of confidentiality reduces the ecological validity of the study and limits the generalizability of data regarding clinical application of the measures (see Jensen, Fisher, & Hoagwood, 1999). In general, empirical information is lacking on response styles and adolescence (see McCann, 1998). Further exacerbating this problem, little empirical information exists on the potential biasing of response styles on measures of psychopathy (Rogers & Cruise, in press). Although confidentiality may have enhanced the accuracy of self-report, there was little way to rule out the exaggeration of behavioral problems.

The current study provided further information regarding the relationship between psychopathy and the childhood disruptive behavior disorders. Data regarding internalizing disorders was utilized in the MTMM; however, further research is needed exploring the relationship between internalizing disorders and adolescent psychopathy. Data from the MTMM indicates differential correlations between the psychopathy measures, anxiety, and depression (as measured by the DISC-2.3 and ASI-4). In general, self-report measures produced higher correlations suggesting the possibility of method variance inflating the correlations. However, research has suggested differential correlates between Factor 1 and 2 with anxiety (see Frick, 1998a, 1998b). Extrapolating from the CD research, it is unclear whether depression is a potential precursor or result of behavioral disruption (Capaldi, 1992). Further research in this area is needed. The relationship between psychopathy and the internalizing disorders should investigate differences between psychopathic and nonpsychopathic adolescents as well as possible variations in symptom endorsement between Factor 1 and Factor 2.

This study utilized participants at multiple stages of the juvenile justice system. Participants were drawn from two samples that represent initial and early contact in the system (short-term detention and release on probation, secure treatment in lieu of long term incarceration). Research in these settings promotes early detection and classification of antisocial behavior. However, little is known about female juvenile offenders and even less about gender effects on the measures utilized in the current study. Silverthorn and Frick (1999) reviewed the literature on females exhibiting disruptive behavior disorders and concluded that different developmental trajectories exist for females than males. The present results regarding construct validity and the utility of the

psychopathy measures cannot be generalized to female offenders. Empirical evidence supports greater base rates of externalizing problems in young boys than girls (Zoccolillo, 1993); however, consistent with findings by Silverthorn and Frick (1998) rates of antisocial behaviors become less disparate across gender during adolescence. Researchers have argued for expanding perspectives on the coverage of antisocial domains in females (Crick & Grotpeter, 1995). In addition to the lack of data regarding construct validity for psychopathy measures in adolescent females, Hinshaw and Park (1999) suggest that different external correlates may also need to be included de-emphasizing overt acts of violence and aggression and increasing the empirical focus on indirect and relational aggression.

Conclusions

Construct validation is an ongoing process that must be continually investigated across diverse settings. The advancement of etiological theories requires reliable and valid assessment of the affective and interpersonal dimension of psychopathy distinct from its behavioral dimension. Results of the current study provide minimal evidence for the construct validity of the two-factor model when the model is evaluated with the MTMM. As opposed to suggesting a radical departure from the traditional and generally accepted two-factor model, the results found here are better understood by a careful examination of the psychometric limitations of the current measures and the pattern of relationship among the psychopathy scales across the measures. Evidence for the two-factor model varies depending on the specific measure. The strongest evidence for the two-factor model was the CFA results for the PCL:YV. However, these results suggest different relative weighting of items compared to the adult literature for Factor 1 and a

stronger association between behavioral indicators and personality components of psychopathy.

The broad question regarding the utility of the construct in clinical decision-making and classification of childhood antisocial behavior remains an open empirical question. The correct identification and classification of adolescents who are at risk for the development of psychopathy, or who currently display psychopathic characteristics, is of primary interest to researchers, forensic-clinicians, and judicial decision-makers. The current data suggest that psychopathy measures may misconstrue the degree of psychopathic personality features due to the reliance on indicators of severe behavior problems. Etiological theories of severe childhood antisocial behaviors are relying on the assumption that Factor 1 characteristics can be reliably assessed as distinct from Factor 2 characteristics. This covariation may limit the ability of the current measures to identify a subgroup of individuals with distinct, measurable interpersonal and affective characteristics. Adolescents high in psychopathy do show a higher frequency of other disruptive disorders and may serve as an effective method for operationalizing important subtyping dimensions found among the traditional classification system. In addition, the current data suggest that Factor 2 dimensions are more relevant to predictive validity.

Directions for Future Research

Longitudinal research tracking the stability and course of psychopathy characteristics from adolescence to adulthood is needed. Currently, no data are available addressing the extent to which psychopathic characteristics remain constant from adolescence to adulthood. In conjunction with longitudinal data, cross-sectional comparisons of adolescents matched with adults on offense and demographics could

better indicate the extent to which the downward extension of the adult two-factor model is appropriate. Data regarding stability will contribute to our understanding of the underlying factor structure of the adolescent psychopathy measures. Until such data is available, we cannot conclude that item adaptation and developmentally oriented scoring criteria support the traditional two-factor model.

The predictive validity of the construct is still an open empirical question. No data presently exist regarding short-term and long-term recidivism. In addition, the construct warrants further research along with other empirically supported predictors of general recidivism such as age of first arrest, number of prior arrests, and violent arrests. Research involving the temporal stability of the construct with different groups of offenders would advance the literature and provide critical information concerning the ability of the construct to add incremental validity in the prediction of serious juvenile offending behavior.

APPENDIX A

PARTICIPANT INFORMED CONSENT FORMS

Effectiveness of Treatment for Youth on Probation
Denton County Juvenile Probation Department
Parental Consent Form for Program Evaluation

I _____(parent/legal guardian) of _____ (child's name) understand that the Denton County Juvenile Probation Department is conducting a research study in collaboration with the University of North Texas Department of Psychology in order to evaluate the effectiveness of treatment and supervision programs.

I understand that information obtained from the intake psychological assessment of my child and file information will be used by the researchers from the University of North Texas for the purpose of program evaluation.

I understand that all information about my child will be kept confidential. All data used by the researchers will be assigned a confidential research number.

The program evaluation was reviewed and approved by the UNT Committee for the Protection of Human Subjects (940) 565-3940. Questions about the program evaluation can be addressed to Keith Cruise, M.S., M.L.S., or Dr. Richard Rogers, who can be reached at (940) 565-2731. Questions about the project may also be directed to Bobbie Hanford, Denton County Probation Department Director of Institutional Services at (940) 565-5639.

Without known risks, the likely benefit of this program evaluation is improved services. I understand that a copy of this consent form is available for me to keep. I also understand that I may withdraw this consent by submitting a written request.

_____ _____
Signature of Parent/Legal Guardian Date

_____ _____
Staff Signature Date

Effectiveness of Treatment for Youth on Probation
Denton County Juvenile Probation Department
Youth Assent Form for Program Evaluation

I_____(name) understand that the Denton County Juvenile Probation Department and University of North Texas Department of Psychology are studying the effectiveness of treatment and supervision programs. This project is referred to as The Effectiveness of Treatment for Youth on Probation or ETYP.

I understand that information from my intake assessment and information from my file will be used for the ETYP project.

I understand that all information from my intake assessment and file will be used for the ETYP project and be kept confidential. This means that any information about me will be assigned a code number and not include my name or other identifying information.

I understand that a copy of this form will be placed in my file at the Denton County Juvenile Probation Department. I understand that I can request the information obtained within this assent form by contacting Bobbie Hanford, Director of Institutional Services Denton County Probation Department.

_____ _____
Youth's Signature Date

_____ _____
Staff Signature Date

APPENDIX B

INSTITUTIONAL FOLLOWUP DATA COLLECTION FORMS

Post Adjudication File Review Form

ID Number:_____ **Admission Date:**_____

Date of Review:_____ **Discharge Date:**_____

1. VERBAL ABUSE
Number of
Occurrences:_____
Dates:_____

2. VERBAL THREATS
Number of
Occurrences:_____
Dates:_____

3. FIGHTING
Number of
Occurrences:_____
Dates:_____

4. ESCAPE THREATS
Number of
Occurrences:_____
Dates:_____

5. ESCAPE ATTEMPTS
Number of
Occurrences:_____
Dates:_____

6. REFUSAL TO COMPLY WITH STAFF REQUESTS
Number of
Occurrences:_____
Dates:_____

7. REMOVAL FROM SCHOOL ENVIRONMENT
Number of
Occurrences:_____
Dates:_____

8. PLACEMENT IN SECLUSION
Number of
Occurrences:_____

Dates:_____

9. SUICIDE ATTEMPTS

Number of
Occurrences:_____
Dates:_____

10. ACTS OF SELF-HARM

Number of
Occurrences:_____
Dates:_____

11. MEDICATION REFUSAL

Number of
Occurrences:_____
Dates:_____

12. REFUSAL TO PARTICIPATE IN TREATMENT PROGRAMMING

Number of
Occurrences:_____
Dates:_____

Operational Definitions of Institutional External Validity Criteria

1. VERBAL ABUSE
   Any documented use of racial slurs or profanity directed toward a peer or staff member.

2. VERBAL THREATS
   Any documented threat comprised of an identified action which is potentially physically harmful directed at an identified person. Vague threats (e.g., you're going to get it; I'm going to hurt somebody) are not to be considered as a verbal threat.

3. FIGHTING
   Any documented instance of a physical altercation between two peers, or a adolescent and staff member. The physical altercation must including hitting, slapping, biting, scratching, pushing, or kicking by the adolescent.

4. ESCAPE THREATS
   Any documented threat in which a patient clearly states an unauthorized plan to leave the treatment unit or detention. Any documented discovery of escape plans will also constitute an escape threat.

5. ESCAPE ATTEMPTS
   Any documented instance where an adolescent attempts to leave the facility without supervision or permission.

6. REFUSAL TO COMPLY WITH STAFF REQUESTS
   Any documented instance where staff requests to comply with rules or procedures are not followed by the adolescent.

7. REMOVAL FROM SCHOOL ENVIRONMENT
   Any documented removal from the school environment area of the treatment facility due to noncompliance with rules, aggression toward self or others, or threatening behavior.

8. PLACEMENT IN SECLUSION
   Any documented placement in seclusion or restraints. This may include lockdown in own cell or placement in restraints. .

9. SUICIDE ATTEMPTS
   Any documented attempt to commit suicide.

10. ACTS OF SELF-HARM
    Any documented self injurious behavior, including burning, cutting, head banging (e.g., on the wall, floor, etc.) biting, or ingesting a potentially dangerous

substance. The behavior must be clearly documented as intended to be harmful to the self.

11. MEDICATION REFUSAL
Any documented refusal of prescribed medications whether through refusal to ingest the medication or surreptitious hiding of medication (e.g., “cheeking’).

12. REFUSAL TO PARTICIPATE IN TREATMENT PROGRAMMING
Any documented refusal to participate in treatment programming which can include: group therapy, school, individual therapy, family therapy, unit meetings, or recreational activities.

APPENDIX C

COMMUNITY SUPERVISION FOLLOWUP DATA COLLECTION FORMS

COMMUNITY SAMPLE FILE REVIEW FORM

ID Number:_____ **Admission Date:**_____

Date of Review:_____ **Discharge Date:**_____

PART A: CONTACT WITH PROBATION OFFICER

Month #1	Week 1:	Office _____	Phone_____	Field_____
	Week 2:	Office _____	Phone_____	Field_____
	Week 3:	Office _____	Phone_____	Field_____
	Week 4:	Office _____	Phone_____	Field_____
Month #2	Week 1:	Office _____	Phone_____	Field_____
	Week 2:	Office _____	Phone_____	Field_____
	Week 3:	Office _____	Phone_____	Field_____
	Week 4:	Office _____	Phone_____	Field_____
Month #3	Week 1:	Office _____	Phone_____	Field_____
	Week 2:	Office _____	Phone_____	Field_____
	Week 3:	Office _____	Phone_____	Field_____
	Week 4:	Office _____	Phone_____	Field_____

PART B - TERMS OF COMMUNITY SUPERVISION

TERMS OF COMMUNITY SUPERVISION

1._____
2._____
3._____
4._____
5._____
6._____
7._____
8._____
9._____
10._____

PART C - SUPERVISION STRATEGIES

1. DRUG TESTING:

Number of Occurrences_____

Dates:_____

Number of Positive Outcomes:_____

2. PLACEMENT IN DETENTION
Number of
Occurrences_____
Dates:_____

3. NEW JUVENILE COURT APPEARANCES
Number of
Occurrences_____
Dates:_____

4. SCHOOL SUSPENSIONS OR EXPULSION
Number of
Occurrences_____
Dates:_____

5. NONCOMPLIANCE WITH TERMS OF COMMUNITY SUPERVISION
Number of
Occurrences_____
Dates:_____

Operational Definitions of Community Supervision Criteria

1. ALCOHOL/DRUG TESTING
   Positive drug tests are documented in the juvenile offender's file. Outcome of each drug test will be noted. If positive, the type of drug found will be noted.

2. PLACEMENT IN DETENTION
   Any documented placement in detention following the initial data collection period within the 3-month follow-up time period.

2. NEW JUVENILE COURT APPEARANCES
   Any documented juvenile court appearance for a new offense following the release of the individual from detention during the 3-month follow-up time period.

4. SCHOOL SUSPENSIONS/EXPULSIONS
   Any documented suspension or expulsion from the juvenile offender's school following the release of the individual from detention during the 3-month follow-up time period.

5. NONCOMPLIANCE WITH TERMS OF COMMUNITY SUPERVISION
   Any episode of noncompliance with the individual juvenile offender's community supervision requirement as documented by his or her probation officer following the release of the individual from detention during the 3 month follow-up time period.

APPENDIX D

PAF FACTOR SOLUTIONS OF PSYCHOPATHY FACTOR SCORES AND INTERNALIZING DISORDERS

Principal Axis Factor Analysis of Psychopathy and Internalizing Disorder Scales with an Oblique Rotation – Three Factor Solution

Scale	Factor 1	Factor 2	Factor 3
PSD I/CP	.65	-.22	-.28
SRP-II Factor 2	.61	.06	-.59
SRP-II Factor 1	.20	.74	-.40
DISC-2.3 GAD	.11	-.71	.09
DISC-2.3 MDD	.32	-.71	-.19
ASI-4 GAD	.57	-.66	-.13
ASI-4 MDD	.43	-.64	-.22
PCL:YV Factor 1	.24	.01	-.87
PCL:YV Factor 2	.43	.09	-.71
PSD CU	.52	.02	-.64
Eigenvalues	2.83	2.31	.51
% of Variance	28.33	23.06	5.10

Note. To assist in interpretation, substantial loadings (≥ .40) are underlined. Loadings ≥ .50 are considered significant.

Principal Axis Factor Analysis of Psychopathy and Internalizing Disorder Scales with an Oblique Rotation – Four Factor Solution

Scale	Factor 1	Factor 2	Factor 3	Factor 4
ASI-4 GAD	.76	-.49	-.13	-.27
ASI-4 MDD	.75	-.47	-.28	.05
PSD I/CP	.57	.04	-.22	-.43
SRP-II Factor 2	-.20	.83	-.29	-.38
DISC-2.3 GAD	.39	-.75	.04	.05
DISC-2.3 MDD	.60	-.60	-.24	.07
PCL:YV Factor 1	.21	.14	-.93	-.34
PCL:YV Factor 2	.27	.23	-.64	-.51
PSD CU	.38	.12	-.58	-.54
SRP-II Factor 2	.38	.13	-.48	-.87
Eigenvalues	2.89	2.35	.57	.33
% of Variance	28.87	23.54	5.67	3.32

Note. To assist in interpretation, substantial loadings (≥ .40) are underlined. Loadings ≥ .50 are considered significant.

APPENDIX E

PSYCHOMETRIC PROPERTIES OF PSYCHOPATHY MEASURES

Psychometric Properties of Factor 1 and Factor 2 Scores X Psychopathy Measure

Scale Factor and Item		Inter-item	Item-Scale	Alpha if Removed
PCL:YV Factor 1	(Alpha = .81)			
PCL:YV 1		.36	.54	.79
PCL:YV 2		.38	.58	.78
PCL:YV 4		.26	.38	.81
PCL:YV 5		.36	.61	.78
PCL:YV 6		.33	.50	.79
PCL:YV 7		.32	.48	.79
PCL:YV 8		.44	.67	.77
PCL:YV 16		.31	.46	.80
PCL:YV Factor 2	(Alpha = .73)			
PCL:YV 3		.19	.31	.72
PCL:YV 9		.18	.31	.72
PCL:YV 10		.30	.54	.68
PCL:YV 12		.31	.53	.68
PCL:YV 13		.15	.22	.74
PCL:YV 14		.23	.40	.71
PCL:YV 15		.26	.43	.70
PCL:YV 18		.26	.49	.69
PCL:YV 19		.27	.49	.69
PSD CU Scale	(Alpha = .56)			
PSD 3		.23	.42	.46
PSD 5		.13	.32	.25
PSD 12		.24	.29	.28
PSD 18		.25	.06	.01
PSD 14		.11	.07	.01
PSD 19		.05	.03	.04
PSD I/CP Scale	(Alpha = .63)			
PSD 1		.17	.29	.61
PSD 2		.25	.53	.55
PSD 4		.12	.31	.62
PSD 8		.11	.23	.62
PSD 9		.12	.19	.63
PSD 11		.23	.51	.56
PSD 13		.22	.40	.58
PSD 15		.19	.39	.59
PSD 16		.16	.34	.59
PSD 20		.10	.09	.68

Psychometric Properties of Factor 1 and Factor 2 Scores by Psychopathy Measure

Scale Factor and Item		Inter-item	Item-Scale	Alpha if Removed
SRP-II Factor 1	(Alpha = .47)			
SRP 6		.13	.34	.39
SRP 10		.02	.04	.50
SRP 19		.05	.10	.52
SRP 25		.16	.43	.35
SRP 30		.06	.14	.47
SRP 31		.06	.14	.47
SRP 47		.17	.42	.34
SRP 53		.11	.25	.43
SRP 60		.05	.11	.48
SRP-II Factor 2	(Alpha = .82)			
SRP 2		.28	.49	.80
SRP 7		.12	.20	.82
SRP 11		.35	.63	.79
SRP 17		.34	.62	.79
SRP 18		.28	.49	.80
SRP 23		.25	.43	.81
SRP 28		.26	.46	.80
SRP 29		.23	.41	.81
SRP 32		.28	.48	.80
SRP 38		.15	.27	.82
SRP 39		.22	.38	.81
SRP 50		.34	.62	.79
SRP 58		.24	.43	.81

APPENDIX F

PAF FACTOR SOLUTIONS OF TOTAL PSYCHOPATHY SCORES AND CHILDHOOD DISORDERS

Principal Axis Factor Analysis of Psychopathy Total Scores and Childhood Disorder Scales with an Oblique Rotation – Two-Factor Solution

Scale	Factor 1	Factor 2
SRP-II Total	.90	-.29
ASI-4 CD	.84	.07
PSD Total	.82	.14
DISC-2.3 CD	.70	.05
PCL:YV Total	.66	.06
DISC-2.3 ODD	.57	.37
ASI-4 ODD	.64	.50
ASI-4 ADHD	.45	.40
DISC-2.3 MDD	.03	.74
ASI-4 GAD	.06	.72
ASI-4 MDD	.07	.67
DISC-2.3 GAD	-.24	.66
DISC-2.3 ADHD	.30	.38
Eigenvalues	5.21	1.96
% of Variance	40.01	15.08

Note. To assist in interpretation, substantial loadings (≥ .40) are underlined.

Principal Axis Factor Analysis of Psychopathy Total Scores and Childhood Disorder Scales with an Oblique Rotation – Four-Factor Solution

Scale	Factor 1	Factor 2	Factor 3	Factor 4
ASI-4 CD	.90	.14	-.45	-.29
PSD Total	.80	.18	-.63	-.19
SRP-II Total	.79	-.16	-.43	.12
DISC-2.3 CD	.75	.14	-.26	.04
PCL:YV Total	.68	.08	-.27	-.17
DISC-2.3 GAD	.06	.73	-.15	-.39
DISC-2.3 MDD	.17	.69	-.35	-.57
DISC-2.3 ADHD	.26	.24	-.78	-.23
ASI-4 ADHD	.44	.27	-.76	-.32
ASI-4 ODD	.60	.45	-.71	-.42
DISC-2.3 ODD	.64	.50	-.64	-.17
ASI-4 MDD	.24	.50	-.38	-.81
ASI-4 GAD	.23	.55	-.49	-.61
Eigenvalues	5.28	2.03	.70	.35
% of Variance	40.60	15.66	5.39	2.73

Note. To assist in interpretation, substantial loadings (≥ .40) are underlined.

APPENDIX G

REFERENCES

REFERENCES

Abikoff, H., & Klein, R. G. (1992). Attention-deficit hyperactivity and conduct disorder: Co-morbidity and implications for treatment. Journal of Consulting and Clinical Psychology, 60, 881-892.

Achenbach, T. M., (1991). Manual for the Child Behavior Checklist and 1991 Profile. Burlington, VT: University of Vermont.

American Psychiatric Association (1968). Diagnostic and statistical manual of mental disorders (2nd ed.). Washington, DC: Author.

American Psychiatric Association (1980). Diagnostic and statistical manual of mental disorders (3rd ed.). Washington, DC: Author.

American Psychiatric Association (1987). Diagnostic and statistical manual of mental disorders (3rd ed., rev.). Washington, DC: Author.

American Psychiatric Association (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.

Angold, A., & Costello, E. J. (1996). Toward establishing an empirical basis for the diagnosis of oppositional defiant disorder. Journal of the American Academy of Child and Adolescent Psychiatry, 35, 1205-1212.

Bagozzi, R. P., & Yi, Y. (1991). Multitrait-multimethod matrices in consumer research. Journal of Consumer Research, 17, 426-439.

Bates, J. E., & Wachs, T. D. (1994). Temperament: Individual differences at the interface of biology and behavior. Washington, DC: APA.

Beitchman, J. H., Patterson, P., Gelfand, B., & Minty, G. (1982). IQ and child psychiatric disorder. Canadian Journal of Psychiatry, 27, 23-28.

Bentler, P. M., (1995). EQS structural equations program manual. Encino, CA: Multivariate Software, Inc.

Biederman, J., Faraone, S., Mick, E., & Lelon, E. (1995). Psychiatric comorbidity among referred juveniles with major depression: Fact or artifact? Journal of the American Academy of Child and Adolescent Psychiatry, 34, 579-590.

Blackburn, R. (1993). Clinical programs with psychopaths. In K. Howells & C. Hollin (Eds.), Clinical approaches to mentally disordered offenders (pp. 179-208). Chichester, England: Wiley.

Block, J., & Block, J. H. (1980). The California Child Q-Set. Palo Alto, CA: Consulting Psychologists Press.

Bourque, B. B., Cronin, R. C., Felker, D. B., Pearson, F. R., Han, M., & Hill, S. M. (1996). Boot camps for juvenile offenders: An implementation evaluation of three demonstration programs. Washington DC: National Institute of Justice.

Brandt, J. R., Kennedy, W. A., Patrick, C. J., & Curtin, J. J. (1997). Assessment of psychopathy in a population of incarcerated adolescent offenders. Psychological Assessment, 9, 429-435.

Butcher, J. N., Williams, C. L., Graham, J. R., Tellegen, A., Ben-Porath, Y., & Kaemmer, B. (1992). MMPI-A: Minnesota Multiphasic Personality Inventory – Adolescent manual for administration, scoring, and interpretation. Minneapolis: University of Minnesota Press.

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. Psychological Bulletin, 56, 81-105.

Campbell, D. T., & Stanley, J. C. (1966). Experimental and quasi-experimental designs for research. Chicago: Rand McNally.

Capaldi, D. M. (1992). Co-occurrence of conduct problems and depressive symptoms in early adolescent boys: II. A 2-year follow-up at Grade 8. Development and Psychopathology, 4, 125-144.

Caron, C., & Rutter, M. (1991). Comorbidity and child psychoaptholgoy: Concepts, issues and research strategies. Journal of Child Psychology and Psychiatry and Allied Disciplines, 32, 1063-1080.

Caspi, A., & Moffit, T. (1995). The continuity of maladaptive behavior: From description to understanding in the study of antisocial behaviors. In D. Cichetti & D. Cohen (Eds.), Developmental psychopathology: Vol. 2 Risk, disorder, and adaptation (pp. 472-511). New York: Wiley.

Christian, R. E., Frick, P. J., Hill, N. L., Tyler, L., & Frazer, D. R. (1997). Psychopathy and conduct problems in children: II. Implications for subtyping children with conduct problems. Journal of the American Academy of Child and Adolescent Psychiatry, 36, 233-241.

Clarizio, H. F. (1997). Conduct disorder: Developmental considerations. Psychology in the Schools, 34, 253-265.

Cleckley, H. (1941, 1976). The mask of sanity (5th ed). St. Louis, MO: Mosby.

Cliff, N., & Hamburger, C. D. (1967). The study of sampling errors in factor analysis by means of artificial experiments. Psychological Bulletin, 68, 430-445.

Cocozza, J. J., & Skowyra, K. R. (2000). Youth with mental health disorders: Issues and emerging responses. Juvenile Justice, 7, 3-13.

Cohen, P., Cohen, J., & Brooks, J. (1993). An epidemiological study of disorders in late childhood and adolescence: II. Persistence of disorders. Journal of Child Psychology and Psychiatry, 34, 869-877.

Cooke, D. J., & Miche, C. (1997). An item response theory analysis of the Hare Psychopathy Checklist-Revised. Psychological Assessment, 9, 3-14.

Cottle, C. C., Lee, R. J., & Heilburn, K. (1999). The prediction of criminal recidivism in juveniles: A meta-analysis. Paper presented at the annual conference of the American Psychological Association. Boston: MA.

Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. Child Development, 66, 710-722.

Cronbach L. J., & Meehl, P. E. (1955). Construct validity of psychological tests. Psychological Bulletin, 52, 281-302.

Edelbrock, C., Rende, R., Plomin, R., & Thompson, L. A. (1995). A twin study of competence and problem behavior in childhood and early adolescence. Journal of Child Psychology and Psychiatry, 36, 775-785.

Eiraldi, R. B., Power, T. J., & Nezu, C. (1997). Patterns of comorbidity associated with subtypes of Attention-deficit/hyperactivity disorder among 6 to 12 year old children. Journal of the American Academy of Child and Adolescent Psychiatry, 36, 503-514.

Farrington, D. P. (1986a). Age and crime. In M. Tonry & N. Morris (Eds.), Crime and justice: An annual review of research (Vol. 7, pp. 189-250). Chicago: University of Chicago Press.

Farrington, D. P. (1986b). The sociocultural context of childhood disorders. In H. Quay & J. Werry (Eds.), Psychopathological disorders of childhood (3rd ed.) (pg. 391-422). New York: Wiley.

Farrington, D. P., & Loeber, R. (1999). Transatlantic replicability of risk factors in the development of delinquency. In P. Cohen, C. Slomkowski, & L. Robins (Eds.), Historical and geographical influences on psychopathology (pp. 299-329). Mahway, NJ: LEA.

Fergusson, D. M., & Horwood, L. J. (1995). Predictive validity of categorically and dimensionally scored measures of disruptive childhood behaviors. Journal of the American Academy of Child and Adolescent Psychiatry, 34, 477-485.

Fergusson, D. M., & Lynskey, M. T. (1993). Maternal age and behavioural outcomes in middle childhood. Pediatric and Perinatal Epidemiology, 7, 77-91.

Foote, J. (1997, October). Expert panel issues report on serious and violent juvenile offenders. Washington DC: Office of Juvenile Justice and Delinquency Prevention.

Forth, A. E., & Burke, H. C. (1998). Psychopathy in adolescence: Assessment, violence, and developmental precursors. In D. Cooke, A. Forth, & R. Hare (Eds.), Psychopathy: Theory research, and implications for society (pp. 205-230). Dordrecht Netherlands: Kluwer Academic Publishers.

Forth, A. E., Hart, S. D., & Hare, R. D. (1990). Assessment of psychopathy in male young offenders. Psychological Assessment: A Journal of Consulting and Clinical Psychology, 2, 342-344.

Forth, A. E., Kosson, D. S., & Hare, R. D. (1994). The Psychopathy Checklist: Youth Version. Unpublished test manual, Carleton University, Ottawa, Ontario.

Frauenglass, S., & Routh, D. K. (1999). Assessment of the disruptive behavior disorders: Dimensional and categorical approaches. In H. Quay & A. Hogan (Eds.), Handbook of disruptive behavior disorders (pp. 49-74). New York: Kluwer/Plenum.

Frick, P. J., (1994). Family dysfunction and the disruptive behavior disorders: A review of recent empirical findings. In T Ollendick & R Prinz (Eds.), Advances in clinical child psychology (Vol. 16). New York: Plenum.

Frick, P. J. (1998a). Callous-unemotional traits and conduct problems: Applying the two-factor model of psychopathy to children. In D. Cooke, A. Forth, & R. Hare (Eds.), Psychopathy: Theory, research, and implications for society (pp. 161-188). Dordrecht, Netherlands: Kluwer Academic Publishers.

Frick, P. J. (1998b). Conduct disorders. In T. Ollendick & M. Hersen (Eds.), Handbook of Child Psychopathology (3rd ed.). New York: Plenum Press.

Frick, P. J., & Hare, R. D. (in press). The Psychopathy Screening Device. Toronto: Multi-Health Systems.

Frick, P. J., & Loney, B. R. (1999). Outcomes of children and adolescents with oppositional defiant disorder and conduct disorder. In H. Quay & A. Hogan (Eds.), Handbook of disruptive behavior disorders (pp. 507-524). New York: Kluwer/Plenum.

Frick P. J., Lahey, B. B., Applegate, B., Kerdyck, L., Ollendick. T., Hynd, G. W., Garfinkel, B., Greenhill, L., Biederman, J., Barkley, R. A., McBurnett, K., Newcorn, J., & Waldman, I. (1994a). DSM-IV field trials for the disruptive behavior disorders: Symptom utility estimates. Journal of the American Academy of Child and Adolescent Psychiatry, 33, 529-539.

Frick, P. J., O'Brien, B., Wootton, J., & McBurnett, K. (1994b). Psychopathy and conduct problems in children. Journal of Abnormal Psychology, 103, 700-707.

Gadow, K., D., & Sprafkin, J. (1995). Adolescent Symptom Inventory manual (4th ed.). Stony Brook, NY: Checkmate Plus.

Goodman, R., Simonoff, E., & Stevenson, J. (1995). The impact of child IQ, parent IQ, and sibling IQ on child behavioral deviance scores. Journal of Child Psychology and Psychiatry, 36, 409-425.

Gorman-Smith. D., Tolan, P. H., & Henry, D. (1999). The relation of community and family to risk among urban-poor adolescents. In P. Cohen, C. Slomkowski, & L. Robins (Eds.), Historical and geographical influences on psychopathology (pp. 349-367). Mahwah, NJ: LEA Publishers.

Gray, J. A. (1982). The neuropsychology of anxiety: An inquiry into the functions of the septo-hippocampal system. Oxford: Oxford University Press.

Grisso, T. (1998). Forensic evaluations of juveniles. Sarasota, FL: Professional Resource Press.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1995). Multivariate data analysis (5th ed.). Upper Saddle River, NJ: Prentice Hall.

Hare, R. D. (1980). A research scale for the assessment of psychopathy in criminal populations. Personality and Individual Differences, 1, 111-117.

Hare, R. D., (1985). Comparison of procedures for the assessment of psychopathy. Journal of Consulting and Clinical Psychology, 53, 7-16.

Hare, R. D. (1991). The Hare Psychopathy Checklist - Revised. Toronto: Multi-Health Systems.

Hare, R. D. (1996). Psychopathy: A clinical construct whose time has come. Criminal Justice and Behavior, 23, 25-54.

Hare, R. D. (1998a). Psychopathy, affect, and behavior. In D. Cooke, A. Forth, & R. Hare (Eds.), Psychopathy: Theory, research, and implications for society (pp. 105-138). Dordrecht, Netherlands: Kluwer Academic Publishers.

Hare, R. D. (1998b). The Hare PCL-R: Some issues concerning its use and misuse. Legal and Criminological Psychology, 3, 99-119.

Hare, R. D., & Frazelle, J. (1980). Some preliminary notes on the use of a research scale for the assessment of psychopathy in criminal populations. Unpublished manuscript, University of British Columbia.

Hare, R. D., & Hart, S. D. (1995). Commentary on antisocial personality disorder: The DSM-IV field trial. In W. J. Livesley (Ed.), The DSM-IV personality disorders (pp. 127-134). New York: Guilford.

Hare, R. D., & McPherson, L. M. (1984). Violent and aggressive behavior by criminal psychopaths. International Journal of Law and Psychiatry, 7, 35-50.

Hare, R. D., Harpur, T. J., Hakstian, A. R., Forth, A. E., Hart, S. D., & Newman, J. P. (1990). The Revised Psychopathy Checklist: Reliability and factor structure. Psychological Assessment: A Journal of Consulting and Clinical Psychology, 2, 338-341.

Harpur, T. J., Hakstian, A. R., & Hare, R. D. (1988). Male psychopaths and their criminal careers. Journal of Consulting and Clinical Psychology, 56, 710-714.

Harpur, T. J., Hakstian, A. R., & Hare, R. D. (1989). Factor structure of the Psychopathy Checklist. Journal of Consulting and Clinical Psychology, 56, 741-747.

Harpur, T. J., & Hare, R. D. (1994). Assessment of psychopathy as a function of age. Journal of Abnormal Psychology, 103, 604-609.

Harris, G. T., Rice, M. E., & Quinsey, V. L. (1994). Psychopathy as a taxon: That psychopaths are a discrete class. Journal of Consulting and Clinical Psychology, 62, 387-397.

Harris, G. T., Rice, M. E., & Quinsey, V. L. (1998). Appraisal and management of risk in sexual aggressors: Implications for criminal justice policy. Psychology, Public Policy, and Law, 4, 73-115.

Hart, S. D. (1998). The role of psychopathy in assessing risk for violence: Conceptual and methodological issues. Criminological Psychology, 3, 121-137.

Hart, S. D., Cox, D. N., & Hare, R. D. (1995). The Hare Psychopathy Checklist: Screening Version. Toronto: Multi-Health Systems.

Hart, S. D., & Hare, R. D. (1997). Psychopathy: Assessment and association with criminal conduct. In D Stoff, J. Breiling, & J. Maser (Eds.) Handbook of antisocial behavior (pp. 22-35). New York: Wiley.

Hart, S. D., Hare, R. D., & Harpur, T. J. (1992). The Psychopathy Checklist – Revised (PCL-R): An overview for researchers and clinicians. In J. Rosen & P. McReynold (Eds.), Advances in psychological assessment (Vol. 8, pp. 103-130). New York: Plenum.

Hawkins, J. D., Herrenkohl, T. I., Farrington, D. P., Brewer, D., Catalano, R. F., Harachi, T. W., & Cothern, L. (2000, April). Predictors of youth violence. Washington DC: Office of Juvenile Justice and Delinquency Prevention.

Heilbrun, K. Leheny, C., Thomas, L., & Huneycutt, D. (1997). A national survey of U.S. statutes on juvenile transfer: Implications for policy and practice. Behavioral Sciences and the Law, 15, 125-149.

Hemphill, J. F., Hare, R. D., & Wong, S. (in press). Psychopathy and recidivism: A review. Legal and Criminological Psychology.

Hemphill, J. F., Templeman, R., Wong, S., & Hare, R. D. (1998). Psychopathy and crime: Recidivism and criminal careers. In D. Cooke, A. Forth, & R. Hare, (Eds.), Psychopathy: Theory, research, and implications for society (pp. 375-398). Dordrecht, Netherlands: Kluwer Academic Publishers.

Henker, B., & Whalen, C. K. (1999). The child with attention-deficit/hyperactivity disorder in school and peer settings. In H. Quay & A. Hogan (Eds.), Handbook of disruptive behavior disorders (pp. 157-178). New York: Kluwer/Plenum.

Hill, C. D., Rogers, R., & Bickford, M. E. (1996). Predicting aggressive and socially disruptive behavior in a maximum security forensic psychiatric hospital. Journal of Forensic Sciences, 41, 56-59.

Hinshaw, S. P. (1992). Externalizing behavior problems and academic underachievement in childhood and adolescence: Causal relationships and underlying mechanisms. Psychological Bulltin, 111, 127-155.

Hinshaw, S. P. (1994). Conduct disorder in childhood: Conceptualization, diagnosis, comorbidity, and risk status for antisocial functioning in adulthood. In D. Fowles, P. Sutker, & S. Goodman (Eds.), Progress in experimental personality and psychopathology research (pp. 3-44). New York: Springer.

Hinshaw, S. P., & Anderson, C. A. (1996). Conduct and oppositional defiant disorders. In E. Marsh & R. Barkley (Eds.), Child psychopathology (pp. 113-149). New York: Guilford.

Hinshaw, S. P., & Park, T. (1999). Research problems and issues: Toward a more definitive science of disruptive behavior disorders. In H. Quay & A. Hogan (Eds.), Handbook of disruptive behavior disorders (pp. 593-620). New York: Kluwer/Plenum.

Hinshaw, S. P., & Zupan, B. A. (1997). Assessment of antisocial behavior in children and adolescents. In D Stoff, J. Breiling, & J. Maser (Eds.), Handbook of antisocial behavior (pp. 36-50). New York: Wiley.

Hinshaw, S. P., Lahey, B. B., & Hart, E. L. (1993). Issues of taxonomy and comorbidity in the development of conduct disorder. Development and Psychopathology, 5, 31-49.

Hodges, K., & Plow. J. (1990). Intellectual ability and achievement in psychiatrically hospitalized children with conduct, anxiety, and affective disorders. Journal of Consulting and Clinical Psychology, 58, 589-595.

Hogan, A. E. (1999). Cognitive functioning in children with Oppositional Defiant Disorder and Conduct Disorder. In H. Quay & A. Hogan (Eds.), Handbook of disruptive behavior disorders (pp. 317-332). New York: Kluwer/Plenum.

Hume, M. P., Kennedy, W. A., Patrick, C. J., & Partyka, D. J. (1996). Examination of the MMPI-A for the assessment of psychopathy in incarcerated adolescent male offenders. International Journal of Offender Therapy and Comparative Criminology, 403, 224-233.

Izard, C. E., Haynes, O. M., Chisholm, Y., & Baak, K. (1991). Emotional determinants of infant-mother attachment. Child Development, 62, 906-917.

Jensen, P. S., Fisher, C. B., Hoagwood, K. (1999). Ethical issues in research with children and adolescents with disruptive behavior disorders. In H. Quay & A. Hogan (Eds.), Handbook of disruptive behavior disorders (pp. 579-592). New York: Kluwer/Plenum.

Kaiser, H. F. (1960). The application of electronic computers to factor analysis. Educational and Psychological Measurement, 20, 141-151.

Kamphaus, R. W., & Frick, P. J. (1996). Structured diagnostic interviews. In R. Kamphaus, & P. Frick (Eds.), Clinical assessment of child and adolescent personality and behavior (pp. 233-244). Boston: Allyn and Bacon.

Kaplan, H. B., & Liu, X. (1999). Explaining transgenerational continuity in antisocial behavior during early adolescence. In P. Cohen, C. Slomkowski, & L. Robins (Eds.), Historical and geographical influences on psychopathology (pp. 163-191). Mahwah, NJ: LEA Publishers.

Kaplan, L. M., & Reich, W. (1991). Manual for Diagnostic interview For children and Adolescents – Revised (DICA-R). St Louis, MO: Washington University.

Kasius, M. C., Ferdinand, R. F., van den Berg, H., & Verhulst, F. C. (1997). Associations between different diagnostic approaches for child and adolescent psychopathology. Journal of Consulting and Clinical Psychology,

Kolbo, J. R., Blakely, E. H., & Engleman, D. (1996). Children who witness domestic violence: A review of empirica literature. Journal of Interpersonal Violence, 11, 281-293.

Kruh, I. P., & Brodsky, S. L. (1997). Clinical evaluations for transfer of juveniles to criminal court: Current practices and future research. Behavioral Sciences and the Law, 15, 151-165.

Lahey, B. B., & Loeber, R. (1994). Framework for a developmental model of oppositional defiant disorder and conduct disorder. In D. Routh (Ed.), Disruptive Behavior Disorders in Childhood. New York: Plenum Press.

Lahey, B. B., & Loeber, R. (1997). Attention-deficit/hyperactivity disorder, oppositional defiant disorder, conduct disorder, and adult antisocial behavior: A life span perspective. In D Stoff, J. Breiling, & J. Maser (Eds.), Handbook of antisocial behavior (pp. 51-59). New York: Wiley.

Lahey, B. B., Applegate, B., Barkley, R. A., Garfinkel, B., McBurnett, K., Kerdyk, L., Greenhill, L., Hynd, G. W., Frick, P. J., Newcorn, J., Biedermann, J., Ollendick, T., Hart, E. L., Perez, D., Waldman, I., & Shaffer, D. (1994). DSM-IV field trials for oppositional defiant disorder and conduct disorder in children and adolescents. American Journal of Psychiatry, 151, 1163-1171.

Lahey, B. B., Hart, E. L., Pliszka, S., Applegate, B., & McBurnett, K. (1993). Neurophysiological correlates of conduct disorder: A rationale and review of current research. Journal of Clinical Child Psychology, 22, 141-153.

Lahey, B. B., Loeber, R., Hart, E. L., Frick, P. J., Applegate, B., Zhang, Q., Green, S. M., & Russo, M. F. (1995). Four-year longitudinal study of conduct disorder in boys: Patterns and predictors of persistence. Journal of Abnormal Psychology, 104, 83-93.

Lahey, B. B., Miller, T. L., Gordon, R. A., & Riley, A. (1999). Developmental epidemiology of the disruptive behavior disorders. In H. Quay & A. Hogan (Eds.), Handbook of disruptive behavior disorders (pp. 23-48). New York: Kluwer/Plenum.

Levenson, M. R., Kiehl, K. A., & Fitzpatrick, C. M. (1995). Assessing psychopathic attributes in a noninstitutionalized population. Journal of Personality and Social Psychology, 1, 151-158.

Lilienfeld, S. O. (1994). Conceptual problems in the assessment of psychopathy. Clinical Psychology Review, 14, 17-38.

Lilienfeld, S. O., & Andrews, B. P. (1996). Development and preliminary validation of a self-report measure of psychopathic personality traits in noncriminal populations. Journal of Personality Assessment, 66, 488-524.

Lipsey, M. W., Wilson, D. B., & Cothern, L. (2000, April). Effective intervention for serious juvenile offenders. Washington DC: Office of Juvenile Justice and Delinquency Prevention.

Lockwood, D. (1997, October). Violence among middle school and high school students: Analysis and implications for prevention. National Institute of Justice Research in Brief, pp. 1-9.

Loeber, R. (1982). The stability of antisocial and delinquent child behavior: A review. Child Development, 53, 1431-1446.

Loeber, R. (1988). Behavioral precursors and accelerators of delinquency. In W. Buikhuisen & S. Mednick (Eds.), Explaning criminal behavior (pp. 51-67). Leiden, Holland: Brill.

Loeber, R. (1991). Antisocial behavior: More enduring than changeable? Journal of the American Academy of Child and Adolescent Psychiatry, 30, 393-397.

Loeber, R., Brinthaupt, V. P., & Green, S. (1990). Attention deficits, impulsivity, and hyperactivity with or without conduct problems: Relationships to delinquency and unique contextual factors. In R. McMahon & R. Peters (Eds.), Behavior disorders of adolescence: Research, intervention, and policy in clinical and school settings (pp. 39-61). New York: Plenum Press.

Loeber, R., & Farrington, D. P. (1997). Strategies and yields of longitudinal studies on antisocial behavior. In D. Stoff, J. Breiling, & J. Maser (Eds.), Handbook of antisocial behavior (pp. 125-139). New York: Wiley.

Loeber, R., Farrington, D., P., Stouthamer-Loeber, M., & van Kammen, W. (1998). Antisocial behavior and mental health problems: Risk factors in childhood and adolescence. Hillsdale, NJ: Earlbaum.

Loeber, R., Green, S. M., Lahey, B. B., Christ, M. A. G., & Frick, P. J. (1992). Developmental sequences in the age of onset of disruptive child behaviors. Journal of Child and Family Studies, 1, 21-41.

Loeber, R., Keenan, K., Lahey, B. B., Green, S. M., & Thomas, C. (1993). Evidence for developmentally based diagnoses of oppositional defiant disorder and conduct disorder. Journal of Abnormal Child Psychology, 21, 377-410.

Loeber, R., Lahey, B. B., & Thomas, C. (1991). The diagnostic conundrum of oppositional defiant disorder and conduct disorder. Journal of Abnormal Psychology, 100, 379-390.

Loney, J., Kramer, J., & Milich, R. S. (1981). The hyperactive child grows up: Predictors of symptoms, delinquency, and achievement at followup. In K. Gadow & J. Loney (Eds.), Psychosocial aspects of drug treatment for hyperactivity (pp. 381-415). Boulder, CO: Westview Press.

Losel, F. (1998). Treatment and management of psychopaths. In D. Cooke, A. Forth, & R. Hare (Eds.), Psychopathy: Theory, research, and implications for society (pp. 303-374). Dordrecht, Netherlands: Kluwer Academic Publishers.

Lynam, D. R. (1996). Early identification of chronic offenders: Who is the fledgling psychopath? Psychological Bulletin, 120, 209-234.

Lynam, D. R. (1997). Pursuing the psychopath: Capturing the fledgling psychopath in a nomological net. Journal of Abnormal Psychology, 106, 425-438.

Lynam, D. R., Whiteside, S., & Jones, S. (1999). Self-reported psychopathy: A validation study. Journal of Personality Assessment, 73, 110-132.

Lyons-Ruth, K., Alpern, L., & Repacholi, B. (1993). Disorganized infant attachment classification and maternal psychosocial problems as predictors of hostile-aggressive behavior in the preschool classroom. Child Development, 64, 572-585.

McBurnett, K., & Lahey, B. B. (1994). Neuropsychological and neuroendocrine correlates of conduct disorder and antisocial behavior in children and adolescents. In D. Fowles, P. Stuker, & S. Goodman (Eds.), Progress in experimental personality and psychopathology research (pp. 199-231). New York: Springer.

McBurnett, K., & Pfiffner, L. (1998). Comorbidities and biological correlates of conduct disorder. In D. Cooke, A. Forth, & R. Hare (Eds.), Psychopathy: Theory, research and implications for society (pp. 189-204). Dordrecht, Netherlands: Kluwer Academic Publishers.

McBurnett, K., Swanson, J. M., Pfiffner, L. J., & Harris, S. J. (1991). The relationship of prefrontal test performance and autonomic arousal to symptoms of inattention/overactivity and aggression/defiance. Paper presented at the meeting of the Society for Research on Psychopathology, Amsterdam.

McCann, J. T. (1998). Malingering and deception in adolescence: Assessing credibility in clinical and forensic settings. Washington DC: APA.

McGee, R., & Williams, S. (1999). Environmental risk factors in oppositional-defiant disorder and conduct disorder. In H. Quay & A. Hogan (Eds.), Handbook of disruptive behavior disorders (pp. 419-440). New York: Kluwer/Plenum.

McGee, R., Feehan, M., & Williams, S. (1996). Mental health. In P. Silva & W. Stanton (Eds.), From child to adult: The Dunedin Multidisciplinary Health and Development Study (pp. 150-162). Auckland, New Zealand: Oxford University Press.

McMahon, R. J. (1994). Diagnosis, assessment, and treatment of externalizing problems in children: The role of longitudinal data. Journal of Consulting and Clinical Psychology, 62, 901-917.

Mannuzza, S., & Klein, R. G. (1999). Adolescent and adult outcomes in attention-deficit/hyperactivity disorder. In H. Quay & A. Hogan (Eds.), Handbook of disruptive behavior disorders (pp. 279-294). New York: Kluwer/Plenum.

Mannuzza, S., Klein, R. G., Bonagura, N., Malloy, P., Giampino, T. L. & Addalli, K. A. (1991). Hyperactive boys almost grown up: V. Replication of psychiatric status. Archives of General Psychiatry, 48, 77-83.

Marsh, E. J., & Barkley, R. A. (1996). Child psychopathology (2nd ed.). New York: Guilford.

Melton, G. B., Petrila, J., Poythress, N.G., & Slobogin C. (1997). Psychological evaluations for the courts: A handbook for mental health professionals and lawyers (2nd ed.). New York: Guilford Press.

Moffit, T. E., (1990). Juvenile delinquency and attention deficit disorder: Boys' developmental trajectories from age 3 to age 15. Child Development, 61, 893-910.

Moffit, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. Psychological Review, 100, 674-701.

Moffit, T. E. (1994). Natural histories of delinquency. In E. Weitekamp & H. Kerner (Eds.), Cross-national longitudinal research on human development and criminal behavior (pp. 3-61). Dordrecht, Netherlands: Kluwer Academic Publishers.

Murdock-Hicks, M., Rogers, R., & Cashel, M. (2000). Predictors of violent and total infractions among institutionalized male juvenile offenders. Journal of the American Academy of Psychiatry and Law, 28, 183-190.

Myers, M. G., Stewart, D. G., & Brown, S. A. (1998). Progression from conduct disorder to antisocial personality disorder following treatment for adolescent substance abuse. American Journal of Psychiatry, 155, 479-485.

Myers, W. C., Burket, R. C., & Harris, H. E. (1995). Adolescent psychopathy in relation to delinquent behaviors, conduct disorder, and personality disorders. Journal of Forensic Sciences, 40, 436-440.

Newman, J. (1998). Psychopathic behavior: An information processing perspective. In D. Cooke, A. Forth, & R. Hare (Eds.), Psychopathy: Theory, research, and implications for society (pp. 81-104). Dordrecht, Netherlands: Kluwer Academic Publishers.

Newman, J. P., & Wallace, J. F. (1993). Divergent pathways to impulsive behavior: Implications for disinhibitory psychopathology in children. Clinical Psychology Review, 13, 699-720.

Nunnally, J. C., & Bernstein, I. H., (1994). Psychometric theory (3rd ed.). McGraw-Hill Inc.

Offord, D. R., Byle, M. H., & Racine, Y.A. (1991). The epidemiology of antisocial behavior in childhood and adolescence. In D. Pepler & K. Rubin (Eds.), The developmental and treatment of childhood aggression (pp. 31-54). Hillsdale, NJ: Earlbaum.

Ogloff, J. P., & Lyon, D. R. (1998). Legal issues associated with the concept of psychopathy. In D. Cooke, A. Forth, & R. Hare (Eds.), Psychopathy: Theory, research, and implications for society (pp. 399-420). Dordrecht, Netherlands: Kluwer Academic Publishers.

Ollendick, T. H., Seligman, L. D., & Butcher, A. T. (2000). Does anxiety mitigate the behavioral expression of severe conduct disorder in delinquent youths? Journal of Anxiety Disorders, 13, 565-574.

Olweus, D. (1979). Stability of aggressionreaction patterns in males: A review. Psychological Bulletin, 86, 852-875.

Oosterlann, J., & Sargeant, J. A. (1996). Inhibition in ADHD, aggressive, and anxious children: A biologically based model of child psychopathology. Journal of Abnormal Child Psychology, 24, 19-38.

Otto, R. K., Greenstein, J. J., Johnson, M. K., & Friedman, R. M. (1992). Prevalence of mental disorders among youth in the juvenile justice system. In J. Cocozza (Ed.), Responding to the mental health needs of youth in the juvenile justice system, (pp. 7-48). Seattle: National Coalition for the Mentally Ill in the Criminal Justice System.

Parent, D., Dunworth, T., McDonald, D., & Rhodes, W. (1997, January). Key legislative issues in criminal justice: Transferring serious juvenile offenders to adult courts. National Institute of Justice Research in Action, pp. 1-6.

Patterson, G. R. (1982). Coercive family process. Eugene, OR: Castalia.

Patterson, G. R., Reid, J. B., & Dishion, T. J. (1992). Antisocial boys. Eugene, OR: Castalia.

Pedhauzr, E. J. (1982). Multiple regression behavioral research: Explanation and prediction (2nd Ed.). New York: Holt, Reinhart, and Winston.

Pfohl, B., Blum, N., Zimmerman, M., & Stangl, D. (1989). The Structured Interview for DSM-III-R Personality Disorders. Iowa City, IA: University of Iowa.

Phelps, L. & McClintock, K. (1994). Papa and peers: A biosocial approach to conduct disorder. Journal of Psychopathology and Behavioral Assessment, 16, 53-67.

Pliska, S. R., (1999). The psychobiology of oppositional defiant disorder and conduct disorder. In H. Quay & A. Hogan (Eds.), Handbook of disruptive behavior disorders (pp. 371-396). New York: Kluwer/Plenum.

Prior, M. Sanson, A., Smart, D., & Oberklaid, F. (in press). Psychological disorders and their correlates in an Australian community sample of pre-adolescent children. Journal of Child Psychology and Psychiatry.

Quay, H. C. (1986). Classification. In H. Quay & J. Werry (Eds.), Psychopathological disorders of childhood (3rd ed.; pp. 1-34). New York: Wiley.

Quay, H. C. (1993). The psychology of undersocialized aggressive conduct disorder: A theoretical perspective. Development and Psychopathology, 5, 165-180.

Quay, H. C. (1999). Classification of the disruptive behavior disorders. In H. Quay & A. Hogan (Eds.), Handbook of disruptive behavior disorders (pp. 3-22). New York: Kluwer/Plenum.

Rey, J. M. (1993). Oppositional defiant disorder. American Journal of Psychiatry, 150, 1769-1778.

Robins, L. (1978). Sturdy childhood predictors of adult antisocial behaviour: Replications from longitudinal studies. Psychological Medicine, 8, 611-622.

Robins, L. (1966). Deviant children growing up: A sociological and psychiatric study of sociopathic personality. Baltimore, MD: Williams and Wilkins.

Robins, L. N., & McEvoy, L. (1990). Conduct problems as predictors of substance abuse. In L. Robins & M. Rutter (Eds.), Straight and devious pathways from childhood to adulthood (pp. 182-204). Cambridge, UK: Cambridge University Press.

Rogers, R. (1995). Axis I interviews for children and adolescents. In R. Rogers Diagnostic and structured interviewing: A handbook for psychologists (pp. 131-166). Odessa, FL: PAR.

Rogers, R., & Bagby, M. (1994). Dimensions of psychopathy: A factor analytic study of the MMPI antisocial personality scale. International Journal of Offender Therapy and Comparative Criminology, 38, 297-308.

Rogers, R., & Cruise, K. R. (2000). Malingering and deception among psychopaths. In C. Gacono (Ed.), The clinical and forensic assessment of psychopathy: A practitioner's guide (pp. 269-284). Mahwah, NJ: LEA.

Rogers, R., Dion, K. L., & Lynett, E. (1992). Diagnostic validity of antisocial personality disorder: A prototypical analysis. Law and Human Behavior, 16, 677-689.

Rogers, R., Duncan, J. C., Lynett, E., & Sewell, K. W. (1994). Prototypical analysis of antisocial personality disorder: DSM-IV and beyond. Law and Human Behavior, 18, 471-484.

Rogers, R., Johansen, J., Chang, J. J., & Salekin, R. T. (1997). Predictors of adolescent psychopathy: Oppositional and conduct-disorder symptoms. Journal of the American Academy of Psychiatry and the Law, 25, 261-271.

Rogers, R., Salekin, R. T., Hill, C., Sewell, K. W., Murdock, M. E., & Neumann, C. S. (2000). The Psychopathy Checklist-Screening Version: An examination of criteria and subcriteria in three forensic samples. Assessment, 7, 1-15.

Rogers, R., Salekin, R. T., Sewell, K. W., & Cruise, K. R. (2000). Prototypical analysis of antisocial personality disorder: An insider's perspective. Criminal Justice and Behavior, 27, 234-255.

Rogers, R., & Sewell, K. R. (1994). Survey of attitudes and life experiences. Unpublished manuscript, University of North Texas at Denton.

Rosenthal, R., & Rosnow, R. L. (1991). Essentials of behavioral research: Methods and data analysis 2nd Edition. New York: McGraw-Hill.

Russo, M. F., & Beidel, D. C. (1994). Co-morbidity of childhood anxiety and externalizing disorders: Prevalence, associated characteristics, and validation issues. Clinical Psychology Review, 14, 199-221.

Rutter, M. (1997). Antisocial behavior: Developmental psychopathology perspectives. In D Stoff, J. Breiling, & J. Maser (Eds.), Handbook of antisocial behavior (pp. 115-124). New York: Wiley.

Salekin, R. T., Rogers, R., & Sewell, K. W. (1996). A review and meta-analysis of the Psychopathy Checklist and Psychopathy Checklist-Revised: Predictive validity of dangerousness. Clinical Psychology: Science and Practice, 3, 203-215.

Sanson, A., & Prior, M. (1999). Temperament and behavioral precursors to oppositional defiant disorder and conduct disorder. In H. Quay & A. Hogan (Eds.), Handbook of disruptive behavior disorders (pp. 397 – 417). New York: Kluwer/Plenum.

Sanson, A., & Rothbart, M. K. (1995). Child temperament and parenting. In M. Bornstein (Ed.), Handbook of parenting (Vol. 4, pp. 299-321). Hillsdale, NJ: Earlbaum.

Sanson, A., Prior, M., & Oberklaid, F. (1985). Normative data on temperament in Australian infants. Australian Journal of Psychology, 37, 185-195.

Schonfeld, I. S., Shaffer, D., O'Connor, P., & Portnoy, S. (1988). Conduct disorder and cognitive functioning: Testing three causal hypotheses. Child Development, 59, 993-1007.

Schwab-Stone, M. E., Shaffer, D., Duncan, M. K., Jensen, P. S., Fisher, P., Bird, H. R., Goodman, S. H., Lahey, B. B., Licthman, J. H., Canino, G. Rubio-Stipec, M., & Rae, D. S. (1996). Criterion validity of the NIMH Diagnostic Interview Schedule for Children Version 2.3 (DISC-2.3). Journal of the American Academy of Child and Adolescent Psychiatry, 35, 878-888.

Sergeant, J. A., Oosterlaaan, J., & van der Meere, J. (1999). Information processing and energetic factors in attention-deficit/hyperactivity disorder. In H. Quay & A. Hogan (Eds.), Handbook of disruptive behavior disorders (pp. 75-104). New York: Kluwer/Plenum.

Serin, R. (1995). Treatment responsivity in criminal psychopaths. Forum on Corrections Research, 7, 23-26.

Shaffer, D., Fisher, P., Dulcan, M. K., Davies, M., Piacentini, J., Schwab-Stone, M. E., Lahey, B. B., Bourdon, K., Jensen, P. S., Bird, H. R., Canino, G., & Regier, D. A. (1996). The NIMH Diagnostic Interview Schedule for Children Version 2.3 (DISC-2.3): Description, acceptability, prevalence rates, and performance in the MECA Study. Journal of the American Academy of Child and Adolescent Psychiatry, 35, 865-877.

Sheley, J. F., & Wright, J. D. (1998, October). High school youths, weapons, and violence: A national survey. National Institute of Justice Research in Brief, pp. 1-8.

Silverthorn, P., & Frick, P. J. (1999). Developmental pathways to antisocial behavior: The delayed onset pathway in girls. Development and Psychopathology, 11, 101-126.

Simonoff, E., Pickles, A., Meyer, J., Silberg, J., & Maes, H. (1998). Genetic and environmental influences on subtypes of conduct disorder behavior in boys. Journal of Abnormal Child Psychology, 6, 495-509.

Slutske, W. S., Heath, A. C., Dinwiddie, S. H., Madden, P. A., Bucholz, K. K., Dunne, M. P., Statham, D. J., & Martin, N. G. (1997). Modeling genetic and environmental influences in the etiology of conduct disorder: A study of 2,682 adult twin pairs. Journal of Abnormal Psychology, 106, 266-279.

Snyder, H. N. (1999, December). Juvenile Arrests 1998. Washington DC: Office of Juvenile Justice and Delinquency Prevention.

Stahl, N. D., & Clarizio, H. (1999). Conduct disorder and comorbidity. Psychology in the Schools, 36, 41-50.

Stattin, H. & Magnusson, D. (1989). The role of early aggressive behavior in the frequency, seriousness, and types of later crime. Journal of Consulting and Clinical Psychology, 57, 710-718.

Stewart, M. A., Cummings, C., Singer, S., & deBlois, C. S. (1981). The overlap between hyperactive and unsocialized aggressive children. Journal of Child Psychology and Psychiatry, 22, 35-45.

Stevens, J. (1996). Applied multivariate statistics for the social sciences (3rd ed.). Mahwah, NJ: Lawrence Earlbaum and Associates.

Stone, M. H. (1993). Antisocial personality disorder and psychopathy. Abnormalities of personality within and beyond the realm of treatment. (pp. 277-315). New York: WW Norton & Co.

Sullivan, L. E. (1996). Assessment of psychopathy using the MMPI-A: Validity in male adoelscent forensic patients. Unpublished Master's thesis, Simon Fraser University, Burnaby, British Columbia.

Sullivan, J. L., & Feldman, S. (1979). Multiple indicators: An introduction. Newbury Park, CA: Sage.

Templeman, R., & Wong, S. (1994). Determining the factor structure of the Psychopathy Checklist: A converging approach. Multivariate Experimental Clinical Research, 10, 157-166.

Trites, R. L., & Laprade, K. (1983). Evidence of an independent syndrome of hyperactivity. Journal of Child Psychology and Psychiatry, 24, 573-586.

Velez, C. M., Johnson, J., & Cohen, P. (1989). A longitudinal analysis of selected risk factors for childhood psychopathology. Journal of the American Academy of Child and Adolescent Psychiatry, 28, 861-864.

Vitacco, M., J., Rogers, R. (2000). Predictors of adolescent psychopathy: testing behavioral dysregulation in relationship to Lynam's model. Manuscript submitted for publication.

Verhulst, F. C., & Achenback, T. M. (1995). Empirically based assessment and taxonomy of psychopathology: Cross-cultural applications. European Child and Adolescent Psychiatry, 4, 61-76.

Waldman, I. D., & Lilienfeld, S. O. (1991). Diagnostic efficiency of symptoms for oppositional defiant disorder and attention-deficit hyperactivity disorder. Journal of Consulting and Clinical Psychology, 59, 732-738.

Walker, J. L., Lahey, B. B., Russo, M. F., Frick, P. J., Christ, M. A., McBurnett, K., Loeber, R., Stouthamer-Loeber, M., & Green, S. M. (1991). Anxiety, inhibition, and conduct disorders in children: I. Relations to social impairment. Journal of the American Academy of Child and Adolescent Psychiatry, 30, 187-191.

Whalen, C. K., & Henker, B. (1999a). Attention-deficit/hyperactivity disorders. In T. Ollendick & M. Hersen (Eds.), Handbook of child psychopathology (3rd ed.). New York: Plenum Press.

Whalen, C. K., & Henker, B. (1999b). The child with attention-deficit/hyperactivity disorder in family contexts. In H. Quay & A. Hogan (Eds.), Handbook of disruptive behavior disorders (pp. 139-156). New York: Kluwer/Plenum.

Widiger, T. A., & Corbitt, E. M. (1995). Antisocial personality disorder in the DSM-IV. In J. Livesley (Ed.), DSM-IV personality disorders (pp. 127-134). New York: Guilford.

Wierson, M., Forehand, R. L., & Frame, C. L. (1992). Epidemiology and the treatment of mental health problems in juvenile delinquents. Advances in Behavior Residential Theory, 14, 93-120.

Wilkinson, G. S. (1993). The Wide Range Achievement Test administration manual. Wilmington, DE: Wide Range Inc.

Wolfgang, M. E., Figlio, R. M., & Sellin, T. (1972). Delinquency in a birth cohort. Chicago, IL: University of Chicago Press.

Wong, S. (1984). The criminal and institutional behaviors of psychopaths (Programs Branch User Report). Ottawa, Canada: Ministry of the Solicitor General of Canada.

Wootton, J. M., Frick, P. J., Shelton, K. K., & Silverthorn, P. (1997). Ineffective parenting and childhood conduct problems: The moderating role of callous-unemotional traits. Journal of Consulting and Clinical Psychology, 65, 301-308.

Yochelson, S., & Samenow, S. E. (1977). The criminal personality, Vol. 2: The change process. New York: Jason Aronson.

Zoccolillo, M. (1992). Co-occurrence of conduct disorder and its adult outcomes with depressive and anxiety disorders: A review. Journal of the American Academy of Child and Adolescent Psychiatry, 31, 547-556.

Zoccolillo, M., Tremblay, R., & Vitaro, F. (1996). DSM-III-R and DSM-III criteria for conduct disorder in preadolescent girls: Specific but insensitive. Journal of the American Academy of Child and Adolescent Psychiatry, 35, 461-471.

Zoccolillo, M., Pickles, A., Quinton, D., & Rutter, M. (1992). The outcome of childhood conduct disorder: Implications for defining adult personality disorder and conduct disorder. Psychological Medicine, 22, 971-986.